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ORIGINAL PAPER

Multi-level Longitudinal Dynamics Between Procedural Justice and Interpersonal Helping in Organizational Teams

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Abstract
Purpose Procedural justice (PJ) is a meaningful predictor of prosocial behavior. This study expands prior studies by theorizing and empirically validating the potential multi-level effects of PJ on the helping behavior of group members. Specifically, we examined the effects of individual PJ perceptions and group-level PJ climate on helping behavior. We further propose theoretically plausible mediators of the PJ-helping relationship and the potential moderating functions of the PJ climate strength.
Methodology We employed multi-wave data collected from 1,064 employees in 107 work teams over a three-year period to test the multi-level effects of PJ on helping behavior. Results of the multi-level analysis showed that PJ climate enhances helping behavior by two intervening processes, namely, the group-level coworker trust climate and individual-level organizational commitment. Moreover, the level and strength of PJ climate served as cross-level moderators that amplify the individual-level effect of PJ perceptions on helping behavior.
Implications By employing a three-wave time-lagged design, this study demonstrated the interplay between PJ perceptions and PJ climate, which induced changes in the helping behavior of group members by multi-level mediating and moderating processes that unfold over a substantial period of time.
Originality/Value This study theorized and empirically validated multi-level processes involving PJ as a predictor of individual helping behavior by specifying the intermediate mechanisms and boundary conditions that account for these unexplored interpersonal phenomena. The use of multi-wave data revealed the temporal development of this multi-level dynamics in organizational teams.

Keywords Procedural justice climate · Coworker trust climate · Climate strength · Organizational commitment · Helping behavior · Multi-level analysis

Introduction

Helping behavior in organizational contexts has drawn considerable attention from scholars over the past decades. Helping behavior, which refers to the act of "voluntarily assisting other group members in work-related areas" (Ng and Van Dyne 2005, p. 515), corresponds to the altruism dimension of organizational citizenship behavior (OCB) (Organ 1988) and the helping dimension of contextual performance (Borman and Motowildo 1993). Given the prevalence of team-based work arrangements and the increase in task interdependence of contemporary work teams (Ilgen and Pulakos 1999), helping behavior has become crucial to team and organizational effectiveness (Anderson and Williams 1996; Borman and Motowildo 1993). In line with this trend, numerous studies have explored the antecedents of helping behavior by examining either individual characteristics, such as personalities and attitudes (e.g., Bettencourt et al. 2001; Christ et al. 2003), or characteristics of the work context or environment (e.g.,

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Dierdorff et al. 2012). The present study investigates the role of procedural justice (PJ) as a key predictor of helping behavior by focusing on the multi-level effects that unfold over a substantial period of time through the formation of various mediating mechanisms at different levels of analysis.

In the OCB literature, scholars have acknowledged the importance of various forms of justice, most frequently PJ, in explaining employee altruism or helping behavior. A number of studies demonstrated the significant association between justice perceptions and helping behavior of employees (e.g., Farh et al. 1990; Karriker and Williams 2009; Lavelle et al. 2009; Moorman 1991). In addition to individual-level findings, the cross-level effects of justice climate and shared perceptions of fairness among members on their helping behavior have been recently identified (e.g., Liao and Rupp 2005; Walumbwa et al. 2010, 2008). Prior findings clearly indicated the positive relation between helping behavior and individual-level PJ perceptions and group-level PJ climate.

However, the extant literature is ambiguous on several issues related to the PJ-helping relationship. First, compared with the substantial body of research on individual-level processes involving PJ, studies on the group-level or cross-level dynamics involving PJ climate remain limited. The mediating mechanisms or the reasons behind the effects of PJ climate on helping behavior have been speculated on, but neither have been clearly theorized nor empirically validated. This study proposes multi-level mediating mechanisms to explain the effects of PJ climate on individual helping. These multi-level mediating processes for PJ climate can provide in-depth knowledge on the contribution of PJ climate in promoting helping behavior.

Second, prior studies on multi-level PJ dynamics that focused on the main effects of PJ perceptions and PJ climate (Liao and Rupp 2005; Naumann and Bennett 2000) have reported on the independent effects of two variables on individual outcomes. The present study theorizes the possibility of the two constructs operating jointly to predict employee attitudes and helping behavior. Specifically, we examine the possibility of a more pronounced individual-level relationship between PJ perceptions and helping behavior, when the PJ climate of the group is high or when team members hold similar PJ perceptions of fairness (Colquitt et al. 2002; Walumbwa et al. 2008). According to the consistency rule of justice (Leventhal 1980), the agreement between team members is particularly important in the justice domain. Thus, the current study determines the multi-level dynamics between PJ perceptions and PJ climate in terms of level and strength.

Finally, prior multi-level studies on justice employed a cross-sectional design that revealed associations among certain variables at particular situations. Organizational phenomena often unfold over time, and employees are required to maintain work behavior for a substantial period. Thus, the cross-sectional examination of the role of PJ lacks ecological validity and causality. To overcome the design limitations of prior studies, the current study employs a three-wave time-lagged design that unfolds over a period of 3 years, thereby allowing the empirical testing of the lagged mediating effects of coworker trust and organizational commitment and the evolving interactive dynamics between PJ perception and PJ climate.

This study aims to achieve the following objectives: (1) Explore multi-level mediating mechanisms that can explain the effects of PJ perceptions and climate on individual helping behavior, (2) Examine the multi-level interaction between PJ perceptions and PJ climate in predicting the attitudes and behaviors of members in relation to the PJ climate level and strength in shaping individual-level processes, and (3) Empirically assess the delayed multi-level mediating and moderating effects of PJ variables by employing a time-lagged design. The subsequent section presents the theoretical framework and hypotheses that are validated using three-wave data collected over a 3-year period from 1,064 employees, who constitute 107 work teams of a Korean organization.

Research Framework

This study utilizes the group engagement model (Lind and Tyler 1988) and Fairness Heuristic Theory (Lind 2001; Van den Bos 2001) as overarching theoretical frameworks. The group engagement model theorizes that mandatory helping behavior is strongly affected by incentives and sanctions, whereas discretionary helping behavior is driven by the attitudes and values of individuals (Tyler and Blader 2000). This model maintains that organizational fairness influences discretionary helping behavior by shaping the attitudes of an individual toward the group. Meanwhile, the basic tenet of Fairness Heuristic Theory is that organizational members depend on their perceptions of fair treatment as heuristic to determine whether they should act in accordance with the needs of their group and organization or to favor their self-interest. When individuals are treated fairly by the organization, they are likely to behave in a manner that fulfills the demands of the organization and then pursue collective interest.

According to Fairness Heuristic Theory, fairness heuristic refers to the overall assessment of fairness of a social entity (e.g., organization). Based on this notion, we conceptualize *PJ perceptions* as employee perceptions on the fairness of decision-making processes within the organization (Naumann and Bennett 2000). Individuals form their

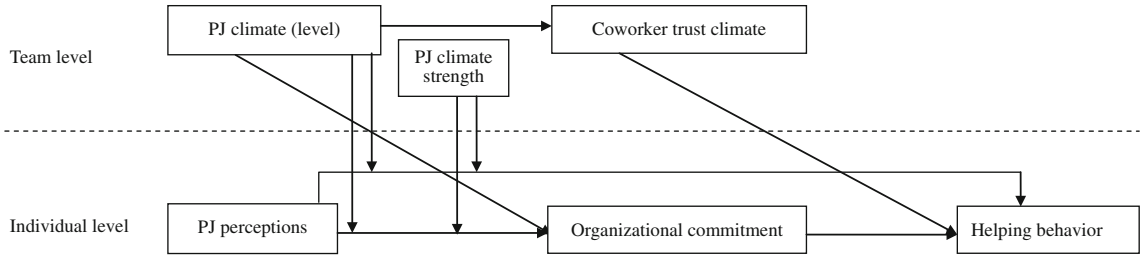

Fig. 1 Longitudinal multi-level model of PJ Perceptions, PJ Climate, Climate Strength, and Helping Behavior

perceptions regarding the overall fairness of the organization by interacting with the surrounding context. Empirical evidence indicates that the attitudes and behavior of employees are affected by their own judgment on the fairness of the workplace (i.e., PJ perceptions) and shared collective perceptions or climate at the group level (i.e., PJ climate) (Liao and Rupp 2005; Mossholder et al. 1998; Naumann and Bennett 2000). Thus, *PJ climate* refers to the distinct group-level cognition of the degree of fairness (Li and Cropanzano 2009; Naumann and Bennett 2000).

Unit-level PJ climate emerges through various mechanisms, including interpersonal interactions among members, attraction–selection–attrition processes, socialization, and justice contagion, as well as the exposure of members to the same policies, procedures, and practices (Liao and Rupp 2005; Naumann and Bennett 2000). Although the agreement among group members is a precondition for the emergence of a collective phenomenon, such as PJ climate, the degree of agreement itself can be a meaningful group-level construct. Thus, we attend to *PJ climate strength*, which refers to the extent to which members agree on their PJ perceptions (Lindell and Brandt 2000). Both the level and strength of PJ climate significantly influence work outcomes (Whitman et al. 2012); hence, we explore their roles as unit-level contextual factors that shape the relationships between PJ perceptions and individual work outcomes.

We propose that PJ perceptions, PJ climate level, and PJ climate strength comprise separate sources of influence in shaping the helping behavior of employees over time (Fig. 1). We further contend that the multi-level effects of PJ constructs are mediated by individual-level attitude (i.e., organizational commitment) and group-level interpersonal perceptions shared among members (i.e., coworker trust climate) based on Fairness Heuristic Theory (Lind 2001; Van den Bos 2001) and the group engagement model (Tyler and Blader 2000). This study also investigates the possibility that PJ climate level and strength function as contextual moderators, which reinforce the individual-level relationship between PJ perceptions and individual work outcomes. An identical PJ perception level may lead to different attitudes and behavior that are relative to the average level of PJ perceptions within the group and the extent to which members agree on the level of their fairness perceptions (Colquitt et al. 2002; González-Romá et al. 2009).

The premises of Fairness Heuristic Theory further predict that the aforementioned relationships unfold over time. This theory suggests that the fairness heuristic consists of judgment and use phases. The judgment phase is the initial stage in which justice perceptions emerge. Once justice perceptions are formed, individuals enter the use phase in which they use justice information to decide whether to behave prosocially or otherwise. Given that justice perceptions are stable and resistant to change, such perceptions can offer consistent guidelines in shaping attitudes and behavior; consequently, a long-term effect on employee behavior is exerted (Van den Bos and Lind 2002). The proposed multi-level mediating processes and cross-level moderation are expected to induce a delayed effect on individual outcomes (see Fig. 1). Each of the linkages in the model is thoroughly explained in the subsequent sections.

Mediation by Organizational Commitment of the Relationship Between PJ Perceptions and Helping Behavior

Fairness Heuristic Theory suggests that fairness judgments prompt individuals to respond to social situations as a member of the social entity (Lind 2001; Van den Bos 2001). Individual perceptions of fairness elicit a "group mode" (Lind 2001), engendering attitudes based on social identity, such as organizational commitment, which in turn result in enhanced prosocial behavior. Similarly, the group engagement model theorizes that the attitudes serve as critical internal motivations that encourage individuals to engage in behaviors that benefit the group (Tyler and Blader 2000). Adhering to this line of reasoning, this study identifies organizational commitment as a key mediating mechanism that underlies the relationship between PJ perceptions and helping behavior. If employees experience a high level of PJ in the organization, they feel valued and respected. As a result, the employees display heightened

commitment to the organization (Moorman and Byrne 2005; Tyler and Blader 2000; Tyler and Lind 1992). This intensified emotional bond, which is based on the belief of employees that they are treated as full and valued members, tends to promote the OCB of employees, such as interpersonal helping (Organ and Ryan 1995). Similar to the study of Lavelle et al. (2009), we hypothesize the mediating effect of organizational commitment on the relationship between PJ perceptions and helping.

Hypothesis 1 Employee organizational commitment mediates the relationship between individual PJ perceptions and helping behavior.

PJ Climate as an Antecedent of Helping Behavior

The few studies that had examined the relationship between PJ climate and individual helping behavior indicated that PJ climate (level) significantly predicts individual helping above and beyond the effects of individual-level PJ perceptions (Liao and Rupp 2005; Naumann and Bennett 2000). Although comprehensive research has explored individual-level variables mediating the relationship between individual PJ perceptions and helping behavior (e.g., Moorman and Byrne 2005), slight attention has been devoted to mediators that transmit the contextual effects of PJ climate on individual helping. Accordingly, this shortcoming is addressed in this study by proposing two mediating processes, which can disentangle the cross-level, temporally delayed effect of PJ climate on individual helping behavior. On the basis of Fairness Heuristic Theory, the coworker trust climate and organizational commitment are isolated as intervening mechanisms that translate the effects of PJ climate on individual helping. The process is explained below.

Coworker Trust Climate as a Group-Level Mediator

Fairness Heuristic Theory posits that fairness judgments not only affect attitudes that are related to social identity, but also influence the formation of interpersonal trust (Lind 2001). Individuals depend on their fairness perceptions to decide how they would respond to the demands of long-term personal relationships. Thus, fairness judgments affect the perceptions of individuals on the trustworthiness of their coworkers and managers. Previous studies on justice demonstrated a positive association between PJ and trust (e.g., DeConinck 2010; Stinglhamber et al. 2006). Moreover, studies that examined the justice–helping relationship at the individual level showed that trust in the supervisor mediates the effects of PJ or interactional justice on OCB (Aryee et al. 2002; Frazier et al. 2010).

Based on Fairness Heuristic Theory and the individual-level studies described in the previous paragraphs, we contend that trust mediates the cross-level relationship between PJ climate and individual helping. This study, however, differs from previous investigations in two aspects. First, the current study attends to the group-level trust climate rather than the individual-level trust as a critical intermediary mechanism that translates the effect of group PJ climate on individual helping behavior. Second, given that the recipients of employee helping behavior are mostly coworkers, trust in coworkers is a more relevant predictor than trust in supervisors. This is because trust in a particular target (e.g., coworkers) enhances willingness to be vulnerable to the actions of the target based on the expectation that the target will execute an action that is beneficial to the focal actor (Mayer et al. 1995). In line with this logic, we extend the target of trust to coworkers, which has been neglected in the context of organizational justice.

Fairness Heuristic Theory postulates that the overall impressions of fair treatment determine the interpersonal trust among members (Lind 2001). Similarly, we propose that unit-level PJ climate fosters coworker trust climate. When members perceive fair procedures exhibited by the organization or work unit supervisors, they probably feel that the team context is generally fair and that other members will also adhere to the acceptable ethical principles (Frazier et al. 2010). A high level of PJ climate elicits feelings of group cooperation among members (Simons and Roberson 2003), which produces a climate of mutual trust. When employees perceive that a shared trust among coworkers exists, they tend to display increased helping behavior based on the shared belief that the other party in the social exchange relationship will eventually reciprocate (Rupp and Cropanzano 2002). Gong et al. (2010) extended this social exchange perspective to the collective level by maintaining that the collective perceptions of treatment by the organization and supervisors can affect the normative level of helping behavior that is expected from group members. Thus, when the group generally experiences mistreatment from the organization or supervisors, the group members become skeptical that others will reciprocate with positive work behaviors. The low level of shared coworker trust climate will lead to decreased helping behavior. We further predict that mediation by shared coworker trust climate ensues over time because, unlike economic exchange, social exchange is founded on the obligation for or expectation of future return (Blau 1964). Therefore, PJ climate in a team has a delayed effect on employee helping behavior by the intervening mechanism of coworker trust climate.

Hypothesis 2 Coworker trust climate mediates the relationship between PJ climate and helping behavior.

Organizational Commitment as an Individual-Level Mediator

We posit that in addition to group-level processes involving shared trust that explain the effect of PJ climate on helping behavior, PJ climate also contributes to an individual-level process that shapes helping behavior (Liao and Rupp 2005). As a social context surrounding individual group members, the shared PJ perceptions of the collective affect the attitudes and behavior of a focal member because of the offered ambient stimuli (Choi et al. 2003). Unlike discretionary stimuli that are directed to a focal member (e.g., performance feedback), ambient stimuli tend to constitute the shared, global context that generates overarching patterns and directions for members (e.g., climate, norms). In contrast to mostly individual-level effects induced by discretionary stimuli, ambient stimuli effects are likely cross-level or those that cross from the group to each member (Choi et al. 2003). Thus, the fairness collectively perceived by members signifies group values or climate, which may encourage each member to sense the respect and favorable treatment of the organization and supervisor beyond the effects of their own PJ perceptions (Lind and Tyler 1988). Similarly, the group engagement model suggests that PJ climate level serves as a key contextual factor that facilitates discretionary behavior by enhancing attitudes toward the organizations, such as commitment and perceived support. Thus, membership in a work unit with a high PJ climate provides members with information that elevates their self-perception (Lind and Tyler 1988), and consequently increases their attachment to the organization. Based on the strong relationship between collective fairness perceptions and organizational commitment (Whitman et al. 2012), we suggest that PJ climate initiates a cross-level effect on helping, as mediated by organizational commitment.

Hypothesis 3 Employee organizational commitment mediates the relationship between PJ climate level and helping behavior.

PJ Climate Level and Strength as Cross-Level Moderators

Prior empirical studies that reported the distinct effects of PJ perceptions and PJ climate on OCB are further extended in the current study by exploring the manner by which two PJ constructs operate jointly to predict individual helping. In this respect, the individual-level effects of PJ perceptions are proposed to promote by the contextual influence of PJ climate. In particular, the effects of PJ perceptions on organizational commitment and helping are expected to be strong, when the level and strength of PJ climate are high.

The PJ climate level is anticipated to offer an ambient group stimulus that legitimizes and further accentuates the role of PJ perceptions in shaping individual attitudes and behavior in a group setting (Choi et al. 2003). In groups with high PJ climate, individual PJ perceptions are likely to become a strong predictor of the organizational commitment and interpersonal helping among members because the significance and validity of high PJ perceptions are confirmed by the overall PJ climate of the group. Fairness Heuristic Theory particularly suggests that the decision of an individual to act on behalf of the group is affected by personal and collective perceptions of justice. These two types of justice perceptions emerge in the judgment phase and serve as heuristics that guide subsequent actions (Lind 2001). The formation of PJ climate within the group dictates the use phase and serves as a critical contextual factor that strengthens the associations between individual PJ perceptions and prosocial work outcomes (Choi et al. 2003). Thus, individual PJ perceptions lead to increased organizational commitment and helping behavior, when the group perceives fair organizational procedures. By contrast, when PJ climate is low, individual PJ perceptions are less likely to predict commitment and helping because low PJ climate, which is shaped during the judgment phase, attenuates the relationship between individual PJ perceptions and work outcomes in the use phase. Hence, we assert that a synergistic, positive cross-level interaction exists between PJ climate level and perceptions in predicting commitment and helping.

Hypothesis 4 PJ climate level moderates the effects of PJ perceptions on employee organizational commitment and helping behavior, such that these effects are stronger when the PJ climate level is high than when it is low.

Previous studies on climate strength mainly addressed the group-level interaction between the level and strength of group climate in predicting group outcomes. For example, Colquitt et al. (2002) articulated that PJ climate strength moderates the relationship between PJ climate level and team performance. Similarly, González-Romá et al. (2009) demonstrated that the relationships between various team climates (e.g., support, innovation, goal achievement) and team financial performance are moderated by climate strength. Departing from these group-level studies, few investigations had examined the cross-level moderation of climate strength. For example, Sanders et al. (2008) reported that the individual-level relationship between the perceptions of high-commitment HRM

systems and affective commitment becomes stronger with less variability in such perceptions within the department (high climate strength). In the present study, PJ climate strength is expected to moderate the individual-level relationship between PJ perceptions and individual outcomes.

The moderation of PJ climate strength can be explicated by Fairness Heuristic Theory, which maintains that a weak climate engenders frequent shifts between the judgment and use phases. Minimal consensus in the fairness perceptions of group members is observed, when PJ climate strength is low. In this case, team members interact with individuals who hold different justice judgments and experience frequent rotations between the judgment and use phases in the process. If this phase shifting occurs frequently, the relationship between justice judgments and prosocial attitudes and behavior attenuates. By contrast, team members rarely experience phase shifting, when they retain similar PJ perceptions (strong PJ climate), a situation which strengthens the associations between justice judgments and prosocial attitudes and behavior.

Intense situations compel individuals to conform to the norms and demands of the organization and to place the interest of the organization above one's own (Sanders et al. 2008). Accordingly, we argue that individual PJ perceptions are more likely to promote organizational commitment and helping behavior under a stronger justice climate. PJ climate strength should also indicate a long-term moderating effect for organizational commitment and helping behavior because a strong climate fosters uniform and consistent attitudes and behaviors among members (Mischel 1976; Ostroff and Bowen 2000). Hence, we advance the following hypothesis.

Hypothesis 5 PJ climate strength moderates the effects of PJ perceptions on organizational commitment and helping behavior, such that these effects are stronger when PJ climate strength is high than when it is low.

Method

Sample and Participants

Data were collected from a large electronics company in Korea. A three-wave survey was performed over a 3-year period as part of the annual organization assessment. Teams with over 40 members were excluded from the sample because the present framework involves shared climate perceptions that may not emerge in large teams whose members rarely engage in close interactions leading to shared experiences and contextual perceptions. This sampling procedure resulted in a target sample of 1,500 employees during the first year (T1) of data collection. Of the target sample drawn at T1, 1,081 employees provided data over the three-year period (overall retention rate = 71 %). Data collected in the second (T2) and third (T3) years of the project included additional participants, that is, either new members who joined the team after T1 or existing members who failed to respond during the T1 survey. Although additional data were available at T2 and T3, this study focused on the 1,081 respondents who participated across the three–wave survey to maintain the coherence and consistency of the sample over the 3-year period. Teams with fewer than three participants were excluded in accordance with the research objective of examining group- and cross-level dynamics among team members. As a result, the final sample of 1,064 employees from 107 work teams was obtained.

In the final sample, team size ranged between 3 and 40 members, with a mean of 10 ($SD = 7.6$). The sample included 93 % males. The average age and organizational tenure were 32.5 ($SD = 5.2$) and 9.9 ($SD = 5.2$) years, respectively. Only team members responded to the surveys. Team leaders did not participate in this study. The participants occupied different organizational positions, namely, entry-level (9 %), rank-and-file (42 %), and managerial level (49 %). The education levels of the participants were diverse: high school graduate (32 %), two-year vocational college (9 %), bachelor's degree (43 %), master's degree (13 %), and doctoral degree (3 %). The equivalence of the final sample and drop-out ($N = 419$)[1] was assessed by performing t-tests on the study and demographic variables. The results of the t-tests showed that the organizational positions and educational levels of the final sample were significantly higher than those of the drop-out ($p < .001$ and $p < .05$, respectively). This observation can be attributed to the higher turnover of entry-level employees than that of those who are tenured. However, respondents and non-respondents did not significantly differ in age, gender, organizational tenure, PJ perceptions (T1), and organizational commitment (T1). Therefore, attrition was not a serious issue in this study.

Measures

In accordance with the theoretical framework, the independent variables, mediators, and dependent variable were measured at T1, T2, and T3, respectively, by adopting items from previous studies. The first two columns in Table 1 present the list of variables at T1, T2, and T3. One of the researchers translated the items from English to Korean, and a bilingual doctoral student translated them back to English (Brislin 1986). The back-translated survey items were nearly identical with the original English items, except for a few minor discrepancies in the wording of the

[1] The possible reasons for the high attrition rate are the voluntary participation of respondents in the three-wave survey and the high turnover (30 %) of entry-level employees in Korean firms.

Table 1 Time-lagged measurement of variables and confirmatory factor analyses of measures

Measurement of variables		Confirmatory factor analyses					
Time	Variables	Model	χ^2 (*df*)	*p*	CFI	RMSEA	AIC
T1	PJ perceptions	T1 Variables					
	Organizational commitment	One-factor model	340.2 (20)	.000	.89	.123	372.19
		Two-factor model	49.6 (19)	.000	.99	.039	83.63
T2	Coworker trust climate	T2 Variables					
	Organizational commitment	One-factor model	906.8 (44)	.000	.78	.136	950.84
	Helping behavior	Two-factor model (combining organizational commitment and coworker trust climate)	616.4 (43)	.000	.86	.112	662.43
T3	Helping behavior	Three-factor model (organizational commitment, coworker trust climate, helping behavior)	172.4 (41)	.000	.97	.055	222.44

CFI comparative fit index, *RMSEA* root mean-square error of approximation, *AIC* akaike information criterion

items. Constructs were assessed using multiple-item measures rated on a five-point Likert scale (1 = *strongly disagree*, 5 = *strongly agree*). Demographic control variables were obtained from the company database at T1.

PJ perceptions (T1)

Drawing on Moorman (1991), we used a four-item measure to evaluate the PJ perceptions of members ($\alpha = .82$). Collective-referent items were used to measure PJ perceptions because these perceptions were conceptualized as the perceptions of the level of fairness with which the organization treats its employees. Thus, the PJ perception scale used in this study included the following items: (a) "Our company shares information about the company with employees," (b) "In our team, everyone is treated equitably according to her/his ability and achievements," (c) "Our team leader encourages members to participate in decision-making processes that affect their task," and (d) "Our team leader recognizes members when they perform well."

PJ Climate (T1)

The PJ perceptions of team members were aggregated at the team level using mean scores to represent PJ climate levels (referent-shift composition model, Chan 1998). The validity of the team-level aggregation of member ratings was examined by evaluating team-level reliability ($\alpha = .78$), within-team agreement ($r_{wg} = .94$), and intraclass correlations (ICC(1) = .13 and ICC(2) = .51). ICC(1) for PJ climate was above the cutoff of .12 (James 1982). Although the ICC(2) value was lower than the desired values (Kirkman et al. 2009), the *F*-statistic presented significant mean differences among groups ($F = 1.67$, $p < .001$). Overall, these statistics justified the aggregation of the justice perceptions of members in creating the team-level measure of PJ climate.

PJ Climate Strength (T1)

PJ climate strength was operationalized using the coefficient of variation (Allison 1978), which was in accordance with prior studies (e.g., Colquitt et al. 2002; Walumbwa et al. 2008). Thus, strength was calculated by dividing the standard deviation of the perceptions of members with the group-level mean. The resulting score was standardized and reversed in sign. Therefore, higher values represent higher levels of climate strength. The coefficient of variation offers a scale-free measure of dispersion or within-group difference among scores in comparison with their average magnitude; hence, the lack of independence between measures of central tendency and those of dispersion was corrected (Roberson et al. 2007). The coefficient of variation is the most widely used operationalization of climate strength (Colquitt et al. 2002; Walumbwa et al. 2008).

Organizational Commitment (T1 and T2)

Four items from Tsui et al. (1997) were adopted to measure organizational commitment at T1 ($\alpha = .86$) and T2 ($\alpha = .84$). The items are as follows: (a) "I talk up this organization to my friends as a great place to work for," (b) "I would accept almost any type of job to keep working for this organization," (c) "I am proud to tell others that I am part of this organization," and (d) "I really care about the fate of this organization."

Coworker Trust Climate (T2)

Based on previous studies on interpersonal trust (Choi 2009; Mayer and Davis 1999), a four-item scale ($\alpha = .80$) was constructed to assess coworker trust climate. This scale includes the following items: (a) "In performing tasks, team members adhere to the basic principles of integrity",

Table 2 Means, standard deviations, and correlations: individual-level data

Variables	*M*	*SD*	1	2	3	4	5	6	7	8	9	10	11
Age	32.53	5.56	–										
Gender	.07	.26	−.39	–									
Hierarchical position	2.41	.65	.79	−.36	–								
Organizational tenure	9.92	6.05	.74	−.23	.49	–							
Education level	2.48	1.18	.10	−.14	.37	−.40	–						
PJ perceptions (T1)	3.49	.65	.21	−.10	.13	.18	−.06	–					
Organizational commitment (T1)	3.82	.68	.16	−.01	.01	.18	−.17	.56	–				
Organizational commitment (T2)	4.02	.67	.26	−.06	.12	.27	−.12	.38	.54	–			
Coworker trust perceptions (T2)	3.92	.58	.17	−.11	.09	.22	−.13	.34	.36	.47	–		
Helping behavior (T2)	3.87	.57	.31	−.16	.24	.28	−.03	.26	.33	.51	.45	–	
Helping behavior (T3)	3.85	.57	.26	−.17	.22	.22	.00	.24	.31	.38	.37	.58	–

$N = 1{,}064$. Gender: Male = 0, Female = 1

$|r| > .06$, $p < .01$; $|r| > .10$, $p < .001$

(b) "Team members do not engage in any unethical behavior", (c) "Team members are willing to contribute to our group's goal even at the expense of personal costs", and (d) "Team members put their best effort to walk the talk". Member ratings were aggregated at the group level with acceptable levels of aggregation statistics ($r_{wg} = .93$, ICC(1) = .12, ICC(2) = .52, $F = 1.60$, $p < .001$).

Helping Behavior (T2 and T3)

Helping behavior was measured using three items ($\alpha = .71$ and .78 at T2 and T3, respectively) adopted from Moorman and Blakely (1995): (a) "I go out of my way to help colleagues with work-related problems," (b) "I show genuine concern and courtesy toward coworkers even under the most trying business or personal situations," and (c) "I voluntarily help new employees settle into their jobs."

Control Variables

Previous studies indicated that helping behavior can be influenced by demographic variables such as age, gender, education, and organization tenure (Podsakoff et al. 2000). The potential effects of these demographic characteristics were addressed by controlling them in the analysis based on company records at T1: age, gender (0 = male, 1 = female), organizational position (1 = entry-level, 2 = rank-and-file, 3 = manager-level), organizational tenure, and education (1 = high school, 2 = two-year vocational college, 3 = bachelor's degree, 4 = master's degree, 5 = doctoral degree). Moreover, T1 organizational commitment and T2 helping behavior were controlled as covariate of T2 organizational commitment and T3 helping behavior, respectively. The size of a group can affect member attitudes and interpersonal dynamics among members (Choi 2007). Thus, the team size was included as a team-level control variable.

Results

Although this study adopted a multi-wave research design, multiple scales were reported by the same source at T1 and T2. Therefore, we conducted a series of confirmatory factor analyses (CFA) to examine the empirical distinctiveness of two variables measured at T1 (PJ perceptions and organizational commitment) and three variables measured at T2 (coworker trust climate, organizational commitment, and helping behavior). The CFA results summarized in Table 1 illustrate that the hypothesized factor structures at T1 and T2 exhibit significantly better fit to the data than alternative factor structures. The means, standard deviations, and correlations across the research variables at the individual and team levels of analysis are reported in Tables 2 and 3, respectively.

Analytical Procedure for Testing Multi-level Mediation

This study proposes a series of mediation processes. Baron and Kenny (1986) postulated that four conditions are necessary to establish a mediated relationship. First, the independent variable must be related to the mediator. Second, the independent variable must be related to the dependent variable. Third, the mediator must be related to the dependent variable. Finally, the significant main effect of the independent variable on the dependent variable should become non-significant (full mediation) or substantially smaller (partial mediation) once the mediator is included in the equation.

Table 3 Means, standard deviations, and correlations: team-level data

Variables	*M*	*SD*	1	2	3	4	5	6
Team size	9.96	7.55	–					
PJ Climate (T1)	3.52	.31	−.10	–				
PJ Climate strength (T1)	.00	1.00	−.11	.31**	–			
Coworker trust climate (T2)	3.93	.27	−.03	.55***	.09	–		
Aggregated organizational commitment (T2)	4.03	.33	−.21*	.55***	.24*	.59***	–	
Team-level aggregated helping behavior (T3)	3.85	.27	−.01	.39***	.19	.51***	.49***	–

$N = 107$

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

This study examined mediation at multiple levels of analysis rather than conducting the traditional mediation process at a single level, therefore, adhering to the recommendation of Mathieu and Taylor (2007) to use two additional preconditions before testing multi-level mediation. One precondition is to consider the influence of methodological controls and covariates. To this end, all analyses on lower-level variables should be conducted by implementing an approach such as hierarchical linear modeling (HLM), which considers the non-independence of the values of those lower-level variables (Raudenbush and Bryk 2002). Therefore, we employed HLM to empirically test the present cross-level hypotheses. The other precondition is to warrant significant between-group variance for each low-level mediator and outcome variable, which will confirm the adequacy of the multi-level approach. This condition was assessed by conducting Chi square tests of between-group variance in the null model using HLM. The results showed that the percentage of total variance that resides between groups is significant for T2 organizational commitment (25 %, χ^2 (106) = 226.39, $p < .001$) and T3 helping behavior (21 %, χ^2 (106) = 179.04, $p < .001$). Thus, the present data fulfill the preconditions for multi-level mediation analysis.

Zhang et al. (2009) emphasized that multi-level confounding can exist, when multi-level mediation is tested. Moreover, they noted that erroneous conclusions may be drawn, when the effects of individual-level predictors and mediators are examined using the multi-level procedure. Accordingly, these authors recommended that when an individual-level predictor or mediator is included in an individual-level equation, the group mean of the predictor or mediator should also be included in the group-level equation as the control to reduce potential multi-level confounding. We adopted this analytical recommendation to avoid potential confounding in multi-level mediation and to rigorously test the hypotheses.

Individual-Level Mediation by Organizational Commitment

Hypothesis 1 proposes that the organizational commitment mediates the relationship between PJ perceptions and helping behavior. This hypothesis was tested by first examining the effect of PJ perceptions on organizational commitment. The potential multi-level confounding was avoided (Zhang et al. 2009) by simultaneously entering T1 PJ perceptions and T1 PJ climate to predict commitment (Model 1 in Table 4). The PJ perceptions of team members at T1 significantly and positively predicted organizational commitment at T2 ($\beta = .07$, $p < .05$), after controlling for the effects of demographic characteristics and T1 organizational commitment. Thus, the first condition of mediation was satisfied. Models 1 and 2 in Table 5 show that both T1 PJ perceptions and T2 organizational commitment exerted significant main effects on T3 helping behavior ($\beta = .06$, $p < .01$ and $\beta = .07$, $p < .05$, respectively). The results were obtained after controlling the effects of T2 helping behavior and potential multi-level confounding, which necessitated the inclusion of PJ climate and aggregated organizational commitment in the group-level equation. These findings fulfill the second and third conditions of the procedure of Baron and Kenny (1986). When T2 organizational commitment was entered into the equation (Model 2, Table 5), the effect of T1 PJ perceptions on T3 helping changed from $\beta = .06, p < .01$ to $\beta = .05, p < .05$, indicating the partial mediation of organizational commitment. The Sobel test confirmed the significant indirect effect of PJ perceptions on helping behavior via organizational commitment ($z_{\text{Sobel}} = 2.28$, $p < .05$). These observations partially support Hypothesis 1.

Multi-level Processes Mediating the Relationship Between PJ Climate and Helping Behavior

To explain the cross-level relationship between PJ climate and helping behavior, we propose two multi-level

Table 4 Hierarchical linear models predicting organizational commitment

	Null model	Model 1	Model 2	Model 3	Model 4
Individual-level predictors					
Age		.01	.01	.01	.01
Gender		−.05	−.05	−.05	−.05
Hierarchical position		−.06	−.06	−.06	−.06
Organizational tenure		.01	.01	.01	.01
Education level		.04	.04	.04	.04
Organizational commitment (T1)		.44***	.44***	.44***	.44***
PJ Perceptions (T1)		.07*	.06	.05	.06
Cross-level moderators					
PJ Climate (T1)			−.12		−.10
PJ Climate strength (T1)				−.03	−.01
Team-level predictors					
Team size		−.01	−.01	−.01	−.01
PJ Climate (T1)		.61***	.61***	.59***	.59***
PJ Climate strength (T1)				.02	.02
Sigma_squared	.40	.29	.29	.29	.29
Tau	.05	.03	.03	.03	.03
Pseudo R^2		.29	.00	.00	.00

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

mediators, namely, coworker trust climate at the group level (Hypothesis 2) and organizational commitment at the individual level (Hypothesis 3). The mediating effect of T2 coworker trust climate was tested by performing a regression analysis using group-level aggregated data. After controlling the team size, T1 PJ climate was determined as a significant predictor of T2 coworker trust climate ($\beta = .49$, $p < .001$; $\Delta R^2 = .30$, $p < .001$), implying a significant relationship between the independent variable and the mediator. The results of HLM reported in Models 1 and 3 in Table 5 specify that both T1 PJ climate and T2 coworker trust climate significantly and positively affect T3 helping behavior ($\gamma = .35$ and .47, respectively, both $p < .001$). Model 3 in Table 5 demonstrates that once coworker trust climate was entered into the equation, the significant main effect of PJ climate on helping behavior became insignificant ($\gamma = .12$, *ns.*). These findings satisfy the conditions of full mediation. The Sobel test was conducted to evaluate the significance of the indirect effect of PJ climate on helping behavior through coworker trust climate (Preacher and Hayes 2004; Sobel 1982). The significant indirect effect ($z_{\text{Sobel}} = 4.45$, $p < .001$) obtained from the Sobel test validates Hypothesis 2.

The effect of PJ climate on organizational commitment was first examined to test Hypothesis 3. Model 1 in Table 4 reports that T1 PJ climate significantly predicted T2 organizational commitment ($\gamma = .61$, $p < .001$) over and above the variance accounted for by the set of control variables, as well as the individual-level PJ perceptions. As reported in Models 1 and 2 in Table 5, both T1 PJ climate and T2 organizational commitment significantly predicted T3 helping behavior ($\gamma = .35$, $p < .001$ and $\beta = .07$, $p < .05$, respectively). The significant effect of PJ climate on helping behavior changed to non-significant ($\gamma = .10$, *ns.*) with the inclusion of organizational commitment at both individual and group levels of analysis, as shown in Model 2 in Table 5. The Sobel test indicates that the indirect effect of PJ climate on helping behavior through individual-level organizational commitment was significant ($z_{\text{Sobel}} = 2.78$, $p < .01$). Thus, Hypothesis 3 is confirmed by the present data.

Cross-Level Moderation by PJ Climate Level and Strength

In Hypotheses 4 and 5, we propose the stronger effects of PJ perceptions on commitment and helping, when the team exhibits higher levels of PJ climate and strength. Such cross-level moderating effects of PJ climate level and strength on the relationship between PJ perceptions and organizational commitment were tested in Models 2 and 3 in Table 4. The two cross-level moderators (level and strength) were examined in separate equations by considering the non-independence of the two measures. The results reveal that neither climate level nor climate strength ($\beta = -.12$ and $-.03$, both *ns.*) moderated the relationship between PJ perceptions and organizational commitment.

Table 5 Hierarchical linear models predicting helping behavior

	Null model	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Individual-level predictors							
Age		.00	.00	.00	.00	.00	.00
Gender		−.17**	−.18**	−.18**	−.17**	−.18**	−.17**
Hierarchical position		.05	.05	.05	.05	.05	.05
Organizational tenure		.00	.00	.00	.00	.00	.00
Education level		.01	.01	.01	.02	.01	.02
Helping behavior (T2)		.52***	.49***	.52***	.52***	.52***	.52***
PJ Perceptions (T1)		.06**	.05*	.06*	.08**	.09**	.08**
Organizational commitment (T2)			.07*				
Cross-level moderators							
PJ Climate (T1)					.32**		.30**
PJ Climate strength (T1)						.06**	.01
Team-level predictors							
Team size		.00	.00	.00	.00	.00	.00
PJ Climate (T1)		.35***	.10	.12	.35***	.33***	.33***
PJ Climate strength (T1)						.02	.02
Aggregated organizational commitment (T2)			.40***				
Coworker trust climate (T2)				.47***			
Sigma_squared	.30	.20	.20	.20	.20	.20	.20
Tau	.02	.03	.02	.01	.03	.03	.03
Pseudo R^2		.28	.04	.09	.00	.00	.00

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

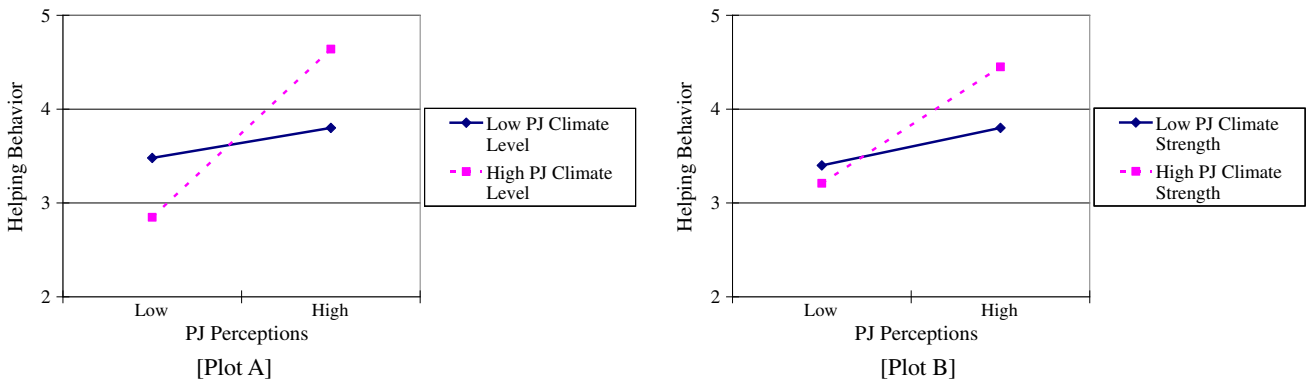

Fig. 2 Cross-level moderating effects of PJ Climate Level and Strength on the relationship between PJ perceptions and Helping Behavior

Models 4 and 5 in Table 5 report the cross-level moderating effects of PJ climate level and strength on the relationship between PJ perceptions and helping behavior. Both climate level and strength exhibited significant cross-level interactions with PJ perceptions in predicting helping behavior ($\beta = .32$, $p < .01$ and $\beta = .06$, $p < .01$, respectively). Following the general procedure recommended by Aiken and West (1991), we plotted the significant interactions of work teams by comparing high and low PJ climate levels and strengths, each representing 1 standard deviation above and below the mean level and strength. The results of these analyses are illustrated in Fig. 2. Plot A in Fig. 2 demonstrates that the effect of member PJ perceptions on helping behavior was stronger, when PJ climate level was high ($b = .45$, $p < .001$) than when it was low ($b = .08$, $p < .05$). Similarly, PJ perceptions exerted a stronger effect on helping behavior, when PJ climate strength was high ($b = .31$, $p < .001$) than when it was low ($b = .10$, *ns.*) (Plot B, Fig. 2). These patterns suggest that the effects of PJ perceptions on helping behavior were

more pronounced, when individuals belonged to a team in which the overall PJ perceptions were high or when members shared a similar fairness judgment. Thus, Hypotheses 4 and 5 receive support for helping behavior, but not for organizational commitment.

Discussion

As a collective construct, perceived fairness is receiving increasing attention. Previous cross-sectional studies generally indicated that unit-level justice climate accounts for unique variance in individual outcomes after controlling for the effects of individual justice perceptions (Liao and Rupp 2005; Naumann and Bennett 2000). However, studies that explore the mechanism through which justice climate affects individual attitudes and behaviors are scarce. Moreover, the literature has not provided a definitive answer regarding the interplay of individual- and group-level justice in shaping the attitudes and behavior of group members. A longitudinal or time-lagged research design is still required to facilitate causal inferences on the effect of PJ over a substantial period. Accordingly, these gaps are addressed by the present study. Below, we highlight the theoretical and practical implications of the present findings and offer directions for further research.

Theoretical Implications

The present finding that organizational commitment mediates the relationship between PJ perceptions and helping behavior replicates the pattern reported in previous studies (e.g., Lavelle et al. 2009). The present research design and analysis expanded the existing mediation argument in two crucial aspects. First, although the current study is not longitudinal in a strict sense, the use of the three-wave time-lagged design demonstrates the temporal stability and long-term effects associated with PJ perceptions and commitment in predicting helping behavior. Second, we controlled the effect of the outcome variables assessed in the previous time point as covariates in the analyses. These time-lagged analyses provide insights on how PJ perceptions and commitment promote and increase the level of helping over time and on how to effectively avoid the potential problems of the same method bias and spurious correlations, which are often observed in cross-sectional studies.

The research design and analytical strategy of this study confirm the multiple routes of influence on individual outcomes, which develop over time. Consistent with studies on group as a social context, group members are affected by both their own direct assessment of the context (PJ perceptions) and the collective judgments shared among members (PJ climate) (cf. ambient stimuli, Choi et al. 2003). The present results further show that the time-delayed effect of PJ climate on helping behavior is mediated by coworker trust climate and organizational commitment. This pattern supports Fairness Heuristic Theory and the social exchange perspective, which identify trust and organizational commitment as critical variables that mediate the relationship between workplace justice and prosocial behavior (Moorman and Byrne 2005). The mediating effect of organizational commitment endorses the multi-foci justice framework, which suggests that fairness perceptions regarding a specific source (i.e., organization) form attitudes directed to that source (Malatesta and Byrne 1997). Extending this framework, the findings of this study also imply that a context distant from the target of the behavior (evaluative judgments on the organization) can shape a context proximal to the target (evaluative judgments regarding coworkers) before engendering the behavior pertinent to the target (helping coworkers). Thus, this study provides novel insights for the justice literature by revealing that a generic, distal form of justice climate affects behavior toward a specific target by shaping a proximal climate related to that target.

In testing the cross-level mediating effect of organizational commitment on the relationship between PJ climate and helping behavior, organizational commitment was included as an individual-level mediator, along with a group-level control of aggregated organizational commitment (Model 2 in Table 5). The indirect effect of PJ climate on helping behavior was significant via both individual ($z_{\text{Sobel}} = 2.78$, $p < .01$) and aggregated commitments ($z_{\text{Sobel}} = 4.67$, $p < .001$). Thus, although the hypothesis of this study focuses on organizational commitment as an individual-level mediator, the analysis indicates that organizational commitment is meaningfully shared among members and operates at both individual and group levels of analysis to convey the effect of PJ climate on helping behavior over a substantial period of time. These findings highlight the value of the multi-level approach and the need to control for multi-level confounding (Zhang et al. 2009) in examining organizational phenomena.

The current exploration of the interplay between PJ perceptions and climate reveals that the level and strength of PJ climate operate as contextual amplifiers of individual-level processes. The effect of individual PJ perceptions is more pronounced, when the level of PJ climate is high. Moreover, the cross-level findings of this study support the premise of Fairness Heuristic Theory, which suggests that agreements in fairness perceptions strengthen the association between fairness judgments and prosocial behavior. These observations confirm previous findings on the group-level moderation of climate strength (e.g., Colquitt et al.

2002; González-Romá et al. 2009; Sanders et al. 2008). Moreover, though individuals perceive their organization as procedurally fair, PJ perceptions will exert a weak or non-significant effect on helping behavior if their team members do not agree with this perception and if the overall PJ perception of the team is low.

A plausible counterargument on the role of climate strength in the relationships between individual perceptions and work outcomes is noteworthy. Generally, climate strength can generate a positive moderating effect (Whitman et al. 2012). However, Van Vianen et al. (2011) reported that the relationship between individual climate perceptions and commitment is strengthened, when climate strength is low. The logic behind this proposition lies in situational strength theory (Mischel 1976), which postulates that the role of individual dispositions or perceptions relative to their attitudes and behavior becomes more pronounced in a weak (i.e., lack of agreement) than in a strong situation. Similarly, an extremely low level of PJ climate can accentuate the significance of PJ perceptions, thereby strengthening the link between individual PJ perceptions and behavior. Therefore, further research undertakings are necessary to resolve the inconsistent predictions derived by fairness heuristic and situational strength theories.

The cross-level interactions that predict helping behavior was significant, whereas the same interactions that predict commitment was not. The lack of moderation of climate level and strength for organizational commitment was potentially induced by the fact that organizational commitment is a private and personal belief rather than a public, interpersonal behavior, such as helping. The moderating effects of PJ climate level and strength are analogous to group normative processes; hence, cross-level contextual effects tend to affect observable behavior than private attitudes (Hackman 1992). Another explanation for the non-significant moderating effect of organizational commitment is that Fairness Heuristic Theory proposes justice perceptions as a heuristic to guide actions rather than attitudes. Given the strong association between fairness perceptions and prosocial behavior predicted by Fairness Heuristic Theory, PJ climate level and strength naturally exert a stronger influence on helping behavior than on organizational commitment.

Practical Implications

Besides theoretical implications, this study also offers several practical implications for managers. Based on the finding that PJ perceptions and climate have a long-term effect on the commitment and helping behavior of employees, procedural fairness is suggested as a worthwhile virtue to pursue if the objective is to create a cooperative work environment. Therefore, team leaders must enhance the perceptions of fairness among individual members and the level of the overall team PJ climate. The possible avenues for fostering PJ perceptions and PJ climate among members include the involvement of team members in important decision-making processes and the provision of opportunities to appeal decisions (Colquitt et al. 2002).

The current findings also suggest that PJ perceptions will have long-term positive implications for interpersonal cooperation among members, when the level of the team PJ climate is high or when its members hold similar PJ perceptions. When the level and strength of PJ climate are low, the effect of PJ perceptions on helping behavior becomes negligible (Fig. 2). Thus, team leaders should elevate the level of team PJ climate and cultivate shared PJ perceptions among members to promote interpersonal helping among members. Team leaders can strengthen perceptual agreements among members by clarifying decision-making processes and making decisions in a consistent manner, which should be based on clear rules and criteria (Colquitt et al. 2002; Naumann and Bennett 2000; Zohar and Luria 2004). Moreover, leaders must develop PJ climate as an ambient stimulus that affects members in a similar manner, rather than as a discretionary stimulus with idiosyncratic implications for each member (Choi et al. 2003).

Finally, the results show that PJ perceptions and PJ climate have long-term effects on employee commitment and helping behavior. Based on these findings, managers must recognize that endeavors toward procedural fairness should be consistent, even when such endeavors may not have an immediate effect on the desired outcome. By providing a stable and consistently fair workplace environment, managers must increase the level and strength of PJ climate, which develops a group context that eventually reinforces the connection between individual PJ perceptions and helping.

Study Limitations and Directions for Future Research

Despite several theoretical and practical implications, this study has limitations. First, the research design is only partially longitudinal because repeated measures of all the variables across the three waves could not be obtained. In particular, the measurement of PJ perceptions and climate at a single point in time (T1) rendered it impossible to keep track of the dynamic of PJ perceptions and climate over time. The commitment and helping behavior at the previous time point were controlled to test the effect of PJ perceptions and climate on commitment and helping. However, this type of analysis still precludes strong inferences on whether the changes in PJ perceptions and climate are responsible for the changes in commitment and

helping. We recommend that future researchers employ a longitudinal panel research design to address this issue.

Second, we employed the referent-shift composition model to properly operationalize the collective fairness perceptions shared among members because we were interested in unit-level PJ climate (Chan 1998). This approach has been recognized as a proper operationalization of collective phenomena (Whitman et al. 2012). The individual-level scores of the same scale were used as the measure of PJ perceptions prior to aggregating at the team level to obtain the PJ climate score. Previous multi-level studies that examined the effects of a construct at the individual and group levels of analysis simultaneously created group-level values by aggregating individual-level scores that serve as individual-level variables before their aggregation (e.g., Liao and Rupp 2005). This approach, nevertheless, can introduce methodological confounding to the results. Thus, to further improve the construct validity at various levels of analysis, future studies should employ individual-referenced measures (e.g., I am treated fairly by the organization) for individual PJ perceptions and group-referenced measures (e.g., My team members are treated fairly by the organization) for PJ climate.

Finally, the results should be interpreted with caution because of the cultural characteristics of the study sample. Although the relationships among PJ, organizational commitment, coworker trust, and helping behavior have been well established in various cultures (Leung 2005), the significant moderating effect of climate strength can still be affected by the collectivistic nature of the Korean culture. Colquitt et al. (2002) argued that collectivism affects climate strength. The moderating effect of climate strength can be stronger in a Korean sample than in other samples because the agreement or interpersonal homogeneity is highly valued in a collectivistic culture (Hofstede 1980). Therefore, the cross-level effect of climate strength requires further evaluation in other cultures to enhance the generalizability of the findings of this study.

In conclusion, helping behavior is affected by the PJ judgment of the individual and by the collective perception of fairness in the workplace. We investigated the multi-level mediating processes in the relationship between PJ climate and helping behavior and the cross-level interactions between PJ climate and PJ perceptions, which unfold over time to define the complex multi-level dynamics between team justice climate and individual justice perceptions. The elevation of the PJ perceptions of employees is beneficial to organizational commitment and helping behavior, whereas a high level of team PJ climate leads to helping behavior via the formation of coworker trust climate and the increased levels of individual and collective organizational commitment. Moreover, by specifying the conditions in which PJ perceptions result in increased helping behavior and by validating the lagged moderating effects of PJ climate level and strength, this study expands extant knowledge on the role of climate strength in justice research. Future studies should improve the current research by conceptualizing and investigating the effects of various forms of justice in shaping other forms of employee outcomes via multiple intervening processes, both at the individual and group levels of analysis.

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