Horizontal-Leader Identification in Construction Project Teams in China: How *Guanxi* Impacts Coworkers' Perceived Justice and Turnover Intentions

Abstract

Based on social comparison theory and organizational justice, this research explores how *Guanxi* with the horizontal leader (HL) influences coworker turnover intention. We used the snowball sampling method to collect survey data from 203 employees in 22 project teams. Overall, *Guanxi* with the HL had an indirect influence on turnover intention through perceived distributive justice pertaining to HL identification. Additionally, procedural justice had a negative, cross-level moderating effect on the relationship between *Guanxi* with the HL and perceived distributive justice. However, the individual-level moderating role of interactional justice was not supported. Theoretical and managerial implications of these findings are discussed.

Introduction

Nowadays, construction projects are becoming increasingly complex and multidisciplinary (Scott-Young & Samson, 2008). As a result, project managers must accept that additional skills and broader knowledge are required for successful management. In response to this pressure, project management teams are undergoing a leadership transition—a paradigm shift from vertical individual leadership to one that is horizontal and collective (Scott-Young et al., 2019). Horizontal leadership involves a project manager assigning dynamic and temporary leadership roles to project team member(s) to facilitate a desirable project outcome (Müller, Sankaran, et al., 2018; Müller, Zhu, et al., 2018). It is deemed as an effective way to improve team performance and innovation (Zhu et al., 2019) and the channels for HLs' career growth (Müller, Zhu, et al., 2018). However, in practice, some coworkers may consider the decision of assigning a particular HL as unfair (Yu et al., 2018), potentially leading to their turnover (Adams, 1965). Unfortunately, scholars' knowledge of this phenomenon is limited, hindering our comprehensive understanding of horizontal leadership's influences on projects.

Guanxi, which is deeply rooted in Chinese culture, refers to interpersonal ties that are embedded in individuals' implicit reciprocal obligations and exchanged favors (Du & Zhou, 2019). Organizational behavior scholars have revealed that *Guanxi* with supervisors or coworkers can play a significant role in employees' work attitudes and behaviors, such as turnover intentions (Cheung et al., 2009). However, its role in horizontal leadership has not yet been investigated. Thus, to theoretically extend the complex nature of *Guanxi* in the context of horizontal leadership, we propose the concept of *Guanxi* with the HL. This concept is defined as interpersonal ties that are embedded in implicit reciprocal obligations and exchanged favors with the HL, largely developed from non-work-related social interactions, both inside and outside working hours. Detailed knowledge about the impact of *Guanxi* allows the project manager to tailor their leadership approaches to the particular needs of Chinese team members,

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thereby avoiding frustration and other demotivating circumstances. Examples include specific face-to-face interactions with team members who are not in *Guanxi* relationships with the HL to make them understand the reasons for not being selected, avoiding adversarial frustration in the team.

According to social comparison theory, individuals who have poor personal relationships (i.e., poor *Guanxi*) with a person in an advantageous position (e.g., an HL) could perceive that they are experiencing unfair treatment (Miceli & Castelfranchi, 2007). Previous research has shown that perceiving an inappropriate HL appointment can harm employees' justice perceptions (Yu et al., 2018), but the empirical effects of *Guanxi* have not been studied in this setting. Thus, this study's first purpose is to explore whether *Guanxi* with the HL is a determinant of the HL coworkers' distributive justice perceptions in HL identification. To mitigate the negative impacts of HL identification on project coworkers who have not received HL designations, we will identify when an HL is most likely to influence coworkers. For this purpose, we draw on organizational justice, allowing us to examine how social comparisons with an HL impact coworkers' perceived distributive justice in terms of outcomes, such as an HL appointment.

Moreover, Aquino et al. (1997) claimed that organizational justice incorporates distributive justice as well as the procedural and interactional justice related to managers' formal decision-making processes and their treatment of subordinates. Employees' perceptions of procedural and interactional justice precede the final decision that can influence their perceptions of distributive fairness (Bies & Moag, 1986). Thus, this article's second purpose is to explain how perceived procedural and interactional justice regarding HL designation influences the relationship between *Guanxi* with the HL and coworkers' distributive justice perceptions. We did this by using perceived procedural and interactional justice as the project team level moderator and individual moderator, respectively, in our proposed theoretical model.

Based on organizational justice literature, employees strive to reduce inequity when they perceive unfair treatment. One way this plays out is employee turnover (Adams, 1965), which has become a significant concern in the construction industry worldwide (Chih et al., 2016). Employees who are responsible for important tasks may leave a project because they perceive that an HL assignment is inappropriate; these sudden departures can greatly detract from project performance (Tripathi et al., 2019). Thus, this study's third objective is to examine whether the perceived distributive justice that is related to *Guanxi* with the HL has further effects on coworkers' turnover intentions.

The implications will include a more deliberate and successful handling of an individual's frustrations and possible turnover intentions, as well as a better understanding of the underlying impacts on motivation and performance. Therefore, we pose the following research questions:

RQ1: In the Chinese context, does project team members' *Guanxi* with the HL influence their work-related feelings (perceived distributive justice) and attitudes (turnover intentions) after HL identification?

RQ2: Can the project manager use justice tools (procedural and interactional) to mitigate the potential negative effects of HL identification on team members' feelings?

Our unit of analysis is the perceived justice of individuals not appointed as HLs. To identify trends, we take a post-positivist position, following Teddlie and Tashakkori (2009). Hereby, objectivity remains the ideal, but we are aware of the subjectivity that emerges in the data collected from people. Overall, we used a deductive, questionnaire-based, quantitative research design to develop a model of perceived justice at different levels of *Guanxi* in a project team.

This study makes several contributions to the body of existing knowledge: (1) We enrich

the existing project management literature by addressing this Chinese phenomenon and highlighting the significance of unique culture characteristics in project management; (2) we integrate three types of perceived justice in the indirect relationship between *Guanxi* with the HL and turnover intention (mediator: perceived distributive justice regarding HL identification; moderators: perceived procedural and interactional justice in the HL identification process); and (3), we enrich the understanding of HL identification criteria in terms of their impacts on coworkers. In a practical sense, our findings can improve managers' understanding of whom to select as HLs as well as how to engage optimal justice channels in the HL identification process to minimize turnover intentions in project teams.

Theoretical Background and Hypotheses Development

Horizontal Leadership and Guanxi in China

Horizontal leadership is "executed by a team member upon nomination by the project manager (vertical leader), and governed by the vertical leader for the time of the nomination" (Pretorius et al., 2017, p. 96). The idea of horizontal leadership in projects has gained traction among both practitioners and scholars, because of its potential to improve project performance. Examples include when project managers are simultaneously leading multiple projects and must delegate responsibilities to one or more team members who they designate in advance to move the projects forward for a while, or when specific expertise is needed to navigate the project through a crisis or to solve an issue (Zhu et al., 2019). When vertical leaders appoint HLs, they recognize an individual's past performance, and successful HLs are likely to become project managers in the future (Müller, Zhu, et al., 2018; Singh & Jampel, 2010). Researchers have established a theoretical framework for horizontal leadership (Müller, Sankaran, et al., 2018), and investigated five constituent events through dedicated studies on nomination (Sankaran et al., 2019), identification (Müller et al., 2016; Müller, Zhu, et al., 2018; Zhu et al.,

2019), empowerment (Yu et al., 2018), horizontal leadership (Pilkienė et al., 2018), and transition (Alonderienė et al., 2020). The Chinese case is an important source of findings in these studies, which advanced our understanding of horizontal leadership; however, these works did not address coworkers' attitudes, a notion that is examined in the present study.

Guanxi is a deeply ingrained value in China, stemming from well-established Confucian culture (Du & Zhou, 2019). Team-member *Guanxi* is similar to team-member exchange (TMX), in that both emphasize the importance of relationship quality in work teams (Chen et al., 2009). Law et al. (2000) argued that exchange tends to be limited to people's work-related interactions, whereas *Guanxi* encompasses both work-related and nonwork-related interactions and may better capture or describe work relationships in China. This indicates that team-member *Guanxi* can better reflect the relationships among team members than TMX. In fact, many theory-based empirical studies have proven that *Guanxi* in the workplace is correlated with employee outcomes, including justice perception (Chen et al., 2011), job satisfaction, organizational commitment, and turnover intentions (Cheung et al., 2009), although not in the context of horizontal leadership.

Social Comparison Theory and Organizational Justice as Theoretical Lenses

Festinger (1954) devised social comparison theory, claiming that people evaluate their opinions and abilities against others who are close to them when an objective and non-social basis for the evaluation is not available. Social comparison theorists have explored individuals' comparison orientation (why); comparison targets (who—superior individuals, peers, and friends) and their characteristics (e.g., similarity and interpersonal relationships); comparison contents (what—opinions and abilities); comparison conditions (when); and comparison consequences (e.g., envy, self-esteem, and fairness perceptions). For example, when there is no clear objective ability evaluation criterion in the work group, employees with higher

comparison orientation (why) will compare themselves to their coworkers (who) to evaluate their ability (what). If one is outperformed by a coworker who has many similar characteristics, this would significantly threaten one's self-esteem (consequences). On the contrary, if one is outperformed by a coworker with a better educational background or longer work experience (less similarity), the threat to one's self-esteem is less likely. In other words, the characteristics of the comparison targets determine one's judgments about the comparison.

In addition to similarity, *Guanxi* can also be one of the most influential factors (Sherf & Venkataramani, 2015). Over the past several decades, numerous studies have verified the importance of social comparisons, demonstrating their substantial impact on people's thinking, feelings, behavior, and sense of self (Buunk et al., 2007). For example, social comparisons can increase turnover intentions (Brockner & Kim, 1993), envy (Menon & Thompson, 2010), and feelings of injustice among colleagues (Adams, 1963). From the perspective of social comparison theory, *Guanxi* with the HL could influence employees' work attitudes and behaviors in the context of horizontal leadership in project teams.

In line with social comparison theory, Adams (1963) proposed the idea that people evaluate outcome fairness by comparing the ratio between their outcomes (e.g., income, possessions) and inputs (e.g., qualifications, skills) with the corresponding ratios of referent others, especially coworkers or colleagues. Acknowledging the fundamental nature of social comparison in promoting justice, many organizational behavior researchers have widely noticed the impacts of internal comparison in organizations on organizational justice (Greenberg et al., 2007). Organizational justice refers to employees' subjective perceptions of workplace fairness and has positive effects on affect, attitudes, and behaviors in construction projects (Yang et al., 2018).

In the field of organizational justice, the literature commonly refers to three kinds of justice that are thought to have different foci: distributive, procedural, and interactional

(Unterhitzenberger & Bryde, 2019). Distributive justice emphasizes the fair distribution of resources and outcomes, whereas procedural justice is concerned with the fair procedures in the decision-making process, and interactional justice focuses on communication of outcomes and procedures (Colquitt et al., 2005; Moliner et al., 2017). Organizational justice not only contributes to employees' work attitudes and behaviors, such as organizational commitment, job satisfaction, and trust (Li & Cropanzano, 2009a), but also benefits project performance (Unterhitzenberger & Bryde, 2019).

Besides, justice at the team level has also attracted the attention of researchers (Moliner et al., 2017). For example, Li and Cropanzano (2009b) demonstrated that justice climate which refers to the degree of fairness perceived by the team as a whole, and peer justice which refers to the manner in which team members treat one another can both predict significant employees' work attitudes and behaviors. However, the research on team-level justice started with procedural justice which was verified to be significantly related to help behaviors (Naumann & Bennett, 2000) and workplace aggression (Dietz et al., 2003) in the work group. Because procedural justice "should be consistent across persons and across time" (Colquitt & Jackson, 2006, p.871). Thus, in this research, procedural justice is conceptualized as a team-level construct which is related to the identification process itself as it is carried out in project teams. On the contrary, distributive justice relates to the outcomes of HL identification, whereas interactional justice depends on the project manager's behavior during HL identification. Owing to these two kinds of justice may varies from individuals' perception and manager's intentional interactions, we conceptualized them as individual level variables.

Guanxi with the HL and Turnover Intention

In project teams with horizontal leadership, *Guanxi* with the HL can impact coworkers' turnover intentions, because having favorable *Guanxi* with the HL has several benefits. First,

in project teams with horizontal leadership, the HL is considered to perform better than their coworkers. Collie et al. (2016) maintained that when an individual has a close relationship with another person who performs better in a certain area, the individual can grow and improve by learning from the higher-performing colleague.

Second, the HL has a temporarily superior position in the project team. As individuals tend to be categorized as in-group or out-group members based on *Guanxi* (Luo & Cheng, 2015), workers who have a favorable *Guanxi* with the HL in project teams can become in-group members during the HL's temporary leadership period, whereas the others who lack this favorable relationship become out-group members. James (2000) noted that in a work setting, members in high-status in-groups often reserve benefits and opportunities for other members of their own group (e.g., promotions, mentoring opportunities, and challenging assignments). In addition, leaders can create a power divide, in which out-group members receive harsher and more negative treatment compared to in-group members (Hogg et al., 2017). This may increase these out-group members' turnover intentions. Therefore, workers who have a favorable *Guanxi* with the HL tend to have positive attitudes toward future career development and demonstrate weaker turnover intentions. Accordingly, we hypothesize the following:

Hypothesis 1: *Guanxi* with the HL is negatively related to the turnover intentions of coworkers who have not been identified as HLs in project teams.

The Mediating Role of Perceived Distributive Justice

In organizational justice literature, distributive justice refers to the perceived fairness of organizational outcome that one receives (Li & Cropanzano, 2009b). Previous research has demonstrated that perceived distributive justice (or injustice) is one of the most significant outcomes of social comparison (Adams, 1963; Sherf & Venkataramani, 2015), and an

antecedent of turnover intention (Osman & Noordin, 2015). Therefore, we claim that it plays a mediating role in the relationship between *Guanxi* with the HL and coworkers' turnover intentions. This logic is illustrated as follows.

Distributive justice is commonly invoked to account for the conditions under which people are dissatisfied with their outcomes (Adams, 1965). According to current theories, fairness judgments are made when people compare their outcomes with those of a referent other (Martin, 1979). For example, they may believe that their organization has treated them unfairly, compared to their coworkers, in the distributions, such as rewards, pay, or promotions (Daileyl & Kirk, 1992; Sweeney & McFarlin, 1997). In the process of social comparisons with the HL, *Guanxi* with the HL can also influence employees' fairness judgments and their perceptions of these distributions (Sherf & Venkataramani, 2015). Sherf and Venkataramani (2015) discovered that employees interpret fairness differently based on their relational ties with others. This is a result of person schemas that can bias a situation's interpretation and thereby influence the distribution's perceived fairness. They suggested that employees judge advantageous inequity as fairer when the compared other is in good terms with them and vice versa.

In China, the reasons for workplace promotions can be complex and obscure (e.g., HL identification), although sometimes equally as simple and obvious. Miceli and Castelfranchi (2007) demonstrated that interpersonal closeness among coworkers (i.e., *Guanxi* in Chinese society) suggests a mutual understanding of each other's personal qualities, goals, skills, and resources. When coworkers have a positive *Guanxi* with the HL, they tend to have a more thorough understanding of the reasons behind the HL appointment (Miceli & Castelfranchi, 2007). Thus, they can more easily understand the HL's position. Then, when these employees learn that their close colleague has an HL opportunity, they tend to have greater fairness perceptions, as they understand more than just the superficial reasons behind the promotion.

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Based on the above arguments, the following hypothesis is proposed:

Hypothesis 2a: *Guanxi* with the HL is positively related to perceived distributive justice regarding HL identification among coworkers who have not been identified as HLs in project teams.

Furthermore, social comparison theory argues that when people engage in a social comparison and perceive that they are being treated unfairly, they take measures to restore the balance to the comparative outcome/input ratios, which can result in turnover (Austin et al., 1980). Perceived distributive justice has been shown to affect employees' work attitudes and behaviors, including job satisfaction, retention, and withdrawal (Daileyl & Kirk, 1992; Sweeney & McFarlin, 1997). In particular many scholars, including Telly et al. (1971) and Hussain and Khan (2019), have found that employee turnover intention is significantly related to distributive justice. Consistent with this previous research, we hypothesize the following:

Hypothesis 2b: Regarding HL identification, the perceived distributive justice of coworkers who have not been identified as HLs in project teams is negatively related to their turnover intentions.

Overall, based on Hypothesis 2a and 2b, we can further hypothesize the following:

Hypothesis 2c: *Perceived distributive justice plays a mediating role in the relationship between Guanxi with the HL and coworkers' turnover intentions.*

The Moderating Roles of Perceived Procedural and Interactional Justice

According to organizational justice literature, individuals are concerned about both the outcomes (i.e., distribution) and fairness of the decision-making process (Greenberg, 2004). Procedural justice, specifically referring to employees' perceived fairness of the decision-

making process, is used to decide how to react to decision-making systems (Colquitt, 2001). He et al. (2017) argued that procedural justice is carried out in organizations via formal regulations and that it encompasses employees' shared beliefs about their entire work team (e.g., project teams). We argue that the procedural justice displayed by the project team in the process of HL identification buffers the relationship between *Guanxi* with the HL and perceived distributive justice.

When the project team displays a high level of fairness in this identification process, *Guanxi* with the HL will less significantly influence coworkers' perceived distributive justice. Fair HL identification processes will ensure that the HL's coworkers clearly understand why the HL, rather than them, was appointed to lead the team temporarily. Hence, even if coworkers were to have poor *Guanxi* with the HL, if they perceive the procedure of HL identification as fair, they might be able to appreciate the strengths they are lacking, which would reduce feelings of unfair distribution. However, under the condition of low-level fairness in the HL identification process, *Guanxi* with the HL will have a greater impact on the coworkers' perceived distributive justice. When these processes are considered unfair, coworkers may feel that the distribution outcome of HL identification is unfair. Comparatively, coworkers with a positive *Guanxi* with the HL will be aware of the latter's competence and abilities and will perceive higher distributive justice. Hence, we hypothesize the following:

Hypothesis 3a: The positive relationship between *Guanxi* with the HL and perceived distributive justice is lower in project teams with high levels of procedural justice in HL identification than in project teams with low levels of procedural justice.

Interactional justice refers to how people perceive the interpersonal treatment (Bies & Moag, 1986) and justifications or explanations (Murphy et al., 2016) they receive while certain procedures are being implemented. Despite the debate over the differences between procedural and interactional justice, most researchers agree that procedural justice is concerned with the

formal aspects of a process, whereas interactional justice hones in on the social aspects (Cropanzano et al., 2002). When individuals perceive that they are being treated with sensitivity, honesty, respect, and openness—especially by managers who provide justifications or explanations for their decisions—they perceive higher levels of interactional justice (Murphy et al., 2016).

When team members experience high levels of interactional justice, displayed by a project manager in the HL identification process, the effects of *Guanxi* with the HL on coworkers' perceived distributive justice will be weaker. As the project manager provides detailed justifications or explanations for the decision, team members will better understand the reasons why the HL was appointed to lead the project team temporarily. Therefore, they do not need to rely on *Guanxi* to understand the specific reasons. On the contrary, if the project manager does not offer detailed explanations or justifications (low levels of interactional justice), the effects of *Guanxi* with the HL will be stronger. Without the project manager's explanations, team members can only judge this distribution based on their understanding of the HL. Therefore, high levels of *Guanxi* with the HL will contribute more to their perceptions of distributive justice regarding HL identification. Based on the above arguments, the following hypothesis is proposed:

Hypothesis 3b: For team members experiencing high levels of interactional justice in HL identification, the positive relationship between *Guanxi* with the HL and perceived distributive justice is lower than for those experiencing low levels of interactional justice.

Figure 1 summarizes the above discussion and illustrates the overall conceptual model,which is based on social comparison theory and justice theory.
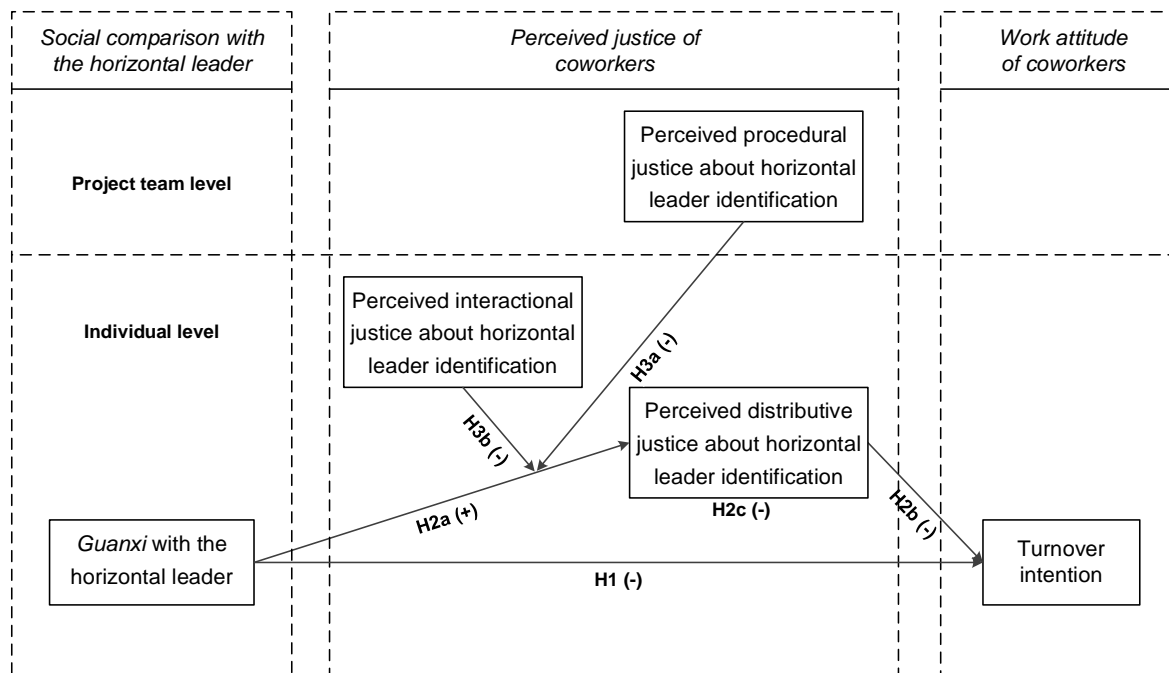
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Figure 1. Conceptual model.

Methodology

Research Design

Our research design followed the seven-step process suggested by Saunders et al. (2009). We took an objective ontology and post-positivist epistemology stance that aimed to identify trends in an objective worldview. The study's deductive approach aimed to test the aforementioned hypotheses. A quantitative approach, executed in a mono-methodological design, in a cross-sectional setting, supported the survey strategy. Owing to the nested data structure, we used multilevel modeling for data analysis. We adopted the proven constructs of previous studies and used Cronbach's alpha and confirmatory factor analysis (CFA) to assess reliability and validity. We addressed the potential impacts of common methods bias that can emerge with self-reporting by following suggestions from Podsakoff et al. (2003) and Conway and Lance (2010). Specifically, we confirmed anonymity and performed factor analyses for the measurement constructs. All measurement dimensions were loaded onto their respective constructs. An unrotated Harman one-factor test across all measures showed no dominant

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factor (Podsakoff et al., 2003). Therefore, common method bias was assumed not to be an issue.

The respondents completed questionnaires through an online survey platform (SurveyStar, Changsha Ranxing Science and Technology, Shanghai, China). We did not request their names or contact information to ensure anonymity, and all participants provided informed consent before beginning the questionnaire. After completing the online survey, the participants were compensated through the survey platform with a random red envelope that contained between 1 and 5 renminbi (RMB). To ensure a high response rate and avoid unintentional neglect, we sent the survey links to the target participants twice but ensured that each participant could only fill out the questionnaire once.

Sample and Procedure

For the sampling technique, we used snowball sampling to identify potential project management teams. Initially, one author contacted the managers of seven construction projects, introducing the research background and purpose. Then, the author identified which project teams implemented horizontal leadership and asked them to recommend other project teams in China that were also applying this form of leadership. After identifying the targeted project teams, all team members who had not been HLs were invited to participate in the survey. Eventually, with the help of project managers, an online survey link was distributed to the HLs' 225 coworkers in the 22 project teams.

We obtained a total of 203 usable responses (90.4% response rate) from 22 construction project teams (100% response rate), the size of which ranged from 9 to 24 team members (Mean = 12.86, SD = 3.44), including project managers and the previous and current HLs. The average number of respondents who had not served as HLs on construction projects was 9.2 (SD = 3.1). The sample was composed of 41.4% females and 58.6% males. The average age was 29.7 years (SD = 7.5), and the average organizational tenure was 4.8 years (SD = 6.7). Finally, 33.5% had

a master's degree or higher, 63.1% had a bachelor's degree, and 3.4% were vocational college graduates or held lower-level qualifications.

Measures

All measures used five-point Likert scales, ranging from 1 = strongly disagree/never/not at all to 5 = strongly agree/very often/extremely. As the participants were all Chinese staff members and the original measures were in English, we applied translation, back translation procedures to create the Chinese language surveys (Brislin, 1970).

We measured *Guanxi* with the HL using six items from a scale developed by Law et al. (2000) to assess supervisor-subordinate *Guanxi*. We used this scale, because we measured *Guanxi* after the HL's appointment and once the HL had experienced the leader role during the data collection period. Thus, the items that measure leader and subordinates' characteristics are also applicable in this condition. Further, to improve its applicability, we revised this scale by replacing *my supervisor* with *the HL*. As a sample item, we included: "I always actively share my thoughts, problems, needs, and feelings with the HL." Additionally, to ensure that the participants evaluated the same HL, we asked them to answer these questions based on their current or recent HL. We also asked them to include the first letters of the HL's first and last names. By comparing the answers from team members in the same project team, we identified and excluded inapplicable answers.

Concerning organizational justice, there are many valid scales developed by researchers, such as Moorman (1991) and Colquitt (2001). In this research, we adopted scales that were previously used in Moorman's (1991) study to measure the different dimensions of organizational justice concerning horizontal identification. First, we conceptualized procedural justice as a team-level construct following the practice of Naumann and Bennett (2000) who used the scale developed by Moorman (1991). Thus, we used the same scale to measure

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procedural justice regarding HL identification which included six items (e.g., "HL identification procedures are designed to provide opportunities to appeal or challenge the decision"). Second, to maintain consistency, we also used the five-items scale developed by Moorman (1991) to measure interactional justice in this research. A sample item is "The project manager considered your viewpoint in the process of making decisions on the HL appointment". For perceived distributive justice regarding HL identification, we also modified the distributive justice index (Price, 1997) as Moorman (1991) did, and the final scale contained six items. One sample question was: "Considering the responsibilities of the HL, how fair do you think the HL appointment is in your project?"

Finally, we measured turnover intention using a four-item scale developed by Kim et al. (1996). A sample item is "I would prefer another, better job than the one I am currently working in."

Control Variables

In accordance with the previous research on turnover intention and to avoid spillover effects, we controlled for employees' gender, age, tenure, job position, and education. In general, a woman's intention to leave was stronger than that of a man, whereas individuals with longer tenure and older age showed a weaker intention to leave. Employees' job positions and education levels also affected turnover intention. As Sweeney and McFarlin (2005) found that referents' similarly influenced perceptions of justice, we controlled for similarity with the HL, measuring it using seven items adapted from Brockner and Kim (1993). As a sample item, we asked: "How similar did you feel to the HL concerning work experience?"

Data Analysis

Due to the nested data structure, we used multilevel modeling to test our hypotheses with

Mplus 7.4 software (Muthén & Muthén, 2017). We tested the mediation hypotheses via Monte Carlo simulation procedures to accurately reflect the asymmetric nature of an indirect effect's sampling distribution (Preacher et al., 2010). We also followed Preacher and Selig (2010) in using 95% confidence intervals (CIs) to clarify the statistical power and detect indirect effects in multilevel modeling. Additionally, we specified a two-level model. At Level 1 (individual level), we specified the random effects of *Guanxi* with the HL on perceived distributive justice and those of perceived distributive justice on turnover intentions. Following Bauer et al. (2006), we also estimated the covariances among the random effects to test the hypothesized Level-1 indirect effects.

We controlled the demographic variables for all Level-1 endogenous variables. Regarding the Level-1 moderation effect, we specified the fixed effect of perceived interactional justice and one fixed interaction term (i.e., *Guanxi* with the HL × perceived interactional justice) on perceived distributive justice. At Level 2, we specified the cross-level moderating effect of perceived procedural justice on the random slope between *Guanxi* with the HL and perceived distributive justice. Meanwhile, we controlled the cross-level main effect of perceived procedural justice on perceived distributive justice. To facilitate interpretation of the findings, perceived procedural justice was grand-mean centered. *Guanxi* with the HL, perceived interactional justice, and the control variables were all group-mean centered to obtain unbiased estimates of the individual-level main effects and the cross-level interaction effects (Hofmann & Gavin, 1998).

Results

Preliminary Analysis

Table 1 provides the means, standard deviations, scale reliabilities, and intercorrelations for the variables in Levels 1 and 2. Consistent with our hypotheses, *Guanxi* with the HL is positively

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correlated with perceived distributive justice, which is negatively related to coworkers'

turnover intentions in Level 1.

Table 1. Descriptive Statistics, Correlations, and Reliability of the Main Variables

Variables	Mean	SD	1	2	3	4	5	6	7	8	9	10
Level 1												
1. Gender	0.58	0.49	-									
2. Age	29.73	7.47	-0.07	-								
3. Education	2.31	0.53	0.06	-0.10	-							
4. Position	1.55	0.83	-0.20**	0.49**	-0.12	-						
5. Tenure	4.84	6.70	-0.01	0.66**	-0.12	0.30**	-					
6. *Guanxi* with the HL	3.29	0.68	0.01	-0.04	-0.02	0.04	0.04	(0.92)				
7. Similarity with the HL	3.07	0.67	-0.05	-0.11	-0.08	-0.06	-0.07	0.40**	(0.93)			
8. Perceived distributive justice	3.23	0.56	0.03	0.03	0.01	0.12	0.03	0.67**	0.29**	(0.92)		
9. Perceived interactional justice	3.26	0.78	0.10	-0.13	0.11	-0.00	-0.10	0.49**	0.19**	0.63**	(0.93)	
10. Turnover intention	2.88	0.93	-0.10	-0.10	-0.00	-0.07	-0.04	-0.47**	-0.16*	-0.66**	-0.59**	(0.91)
Level 2												
1. Project team size	12.86	3.44	-									
2. Perceived procedural justice	3.10	0.50	-0.02	(0.93)								

Note: $N = 203$ in Level 1, $N = 22$ in Level 2. For gender, female = 0, male = 1; for position, front-line employee = 0, front-line manager = 1, middle manager = 2, senior manager = 3; and for education, 1 = vocational college graduate or lower, 2 = bachelor's degree, 3 = master's degree or above. The reliability (i.e., Cronbach's alpha) of the variables is shown in parentheses. $^*p < 0.05$, $^{**}p < 0.01$.

Table 1 shows that each variable's Cronbach's alpha value is higher than 0.9, suggesting that the measures are reliable (Fornell & Larcker, 1981). Using CFA to examine the key variables' construct validity, we found that the hypothesized five-factor model (*Guanxi* with the HL, perceived distributive, interactional, and procedural justice and turnover intention) was a better fit for the data ($\chi^2 = 615.46$, $df = 340$, SRMR = 0.06, CFI = 0.94, TLI = 0.94, RMSEA = 0.06) than the other 10 constrained models, in which any two of the five factors were combined ($224.5 \leq \Delta\chi^2(\Delta df = 4) \leq 880.9$, $ps < 0.001$). Additionally, as all the measures were self-reported, there was a potential for common method variance (Podsakoff et al., 2003). Thus, we also conducted a CFA in which we loaded all the items of the multiple-item variables on one latent factor. The results showed that the one-factor model fit the data poorly ($\chi^2 = 2424.04$, $df = 350$, RMSEA = 0.17, TLI = 0.52, CFI = 0.56). Therefore, common method bias was not a problem.

Before conducting the multilevel modeling analysis, we tested the significant between-team variances in perceived procedural and distributive justice and turnover intention. Their intraclass correlation (ICC) (1)s range from 0.20 to 0.48, their ICC(2)s range from 0.70 to 0.90, and the within-group interrater reliability (R_{wg})s range from 0.85 to 0.96, suggesting that these variables are suitable for further multilevel analysis, and that perceived procedural justice can be aggregated to Level 2.

Hypotheses Testing

Hypothesis 1 proposed that *Guanxi* with the HL would be positively associated with turnover intention. As shown in Table 2, the results of $Model_{22}$ ($\gamma = -0.54$, $p < 0.01$) suggest that Hypothesis 1 is supported. To examine indirect effects through perceived distributive justice, which refers to Hypothesis 2c, we conducted a mediation test. The results of the $Model_{12}$ test showed that *Guanxi* with the HL was positively related to perceived distributive justice ($\gamma = 0.35$, $p < 0.01$), and the results of $Model_{23}$ showed that perceived distributive justice

was negatively correlated with turnover intention ($\gamma = -0.59, p < 0.01$), yielding that Hypotheses 2a and 2b were both supported. With 20,000 Monte Carlo replications, we found that for *Guanxi* with the HL, the individual mediation effect of perceived distributive justice was -0.24 (95% confidence interval [CI] = [-0.37, -0.13]) on turnover intention. Because the CI did not contain zero, Hypothesis 2c was supported; overall, Hypothesis 1, 2a, 2b, and 2c were supported.

Table 2. Unstandardized Coefficients of the Multilevel Model

Variables	PDJ			Turnover Intention		
	$Model_{11}$	$Model_{12}$	$Model_{13}$	$Model_{21}$	$Model_{22}$	$Model_{23}$
Intercept	3.23**	3.22**	3.25**	2.87**	2.87**	2.87**
	(0.05)	(0.05)	(0.05)	(0.12)	(0.12)	(0.11)
Level 1 predictors						
Gender	-0.02	-0.06	-0.05	-0.10	-0.09	-0.05
	(0.07)	(0.06)	(0.06)	(0.15)	(0.12)	(0.08)
Age	0.00	0.00	0.00	-0.01	-0.01	-0.01
	(0.01)	(0.01)	(0.00)	(0.01)	(0.01)	(0.01)
Education	-0.02	-0.00	0.01	0.03	0.02	0.08
	(0.05)	(0.04)	(0.05)	(0.10)	(0.08)	(0.07)
Position	0.03	0.05	0.05	0.03	0.03	0.09
	(0.06)	(0.04)	(0.04)	(0.08)	(0.06)	(0.05)
Tenure	0.01	0.00	0.00	0.00	0.01	0.01
	(0.01)	(0.00)	(0.00)	(0.01)	(0.01)	(0.01)
Similarity with the HL	0.15*	-0.02	-0.03	-0.16	0.04	0.03
	(0.06)	(0.04)	(0.04)	(0.08)	(0.09)	(0.08)
Guanxi with the HL		0.35**	0.37**		-0.54**	-0.10
		(0.08)	(0.06)		(0.11)	(0.12)
PDJ						-0.59**
						(0.13)
PIJ	0.38**	0.20**	0.19**			-0.30**
	(0.04)	(0.04)	(0.05)			(0.09)
Guanxi with the HL $\times$ PIJ			-0.05			
			(0.06			
Level 2 predictors						
Team size	-0.02*	-0.03**	-0.01*	0.05*	0.05*	0.05*

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	(0.01)	(0.01)	(0.01)	(0.02)	(0.02)	(0.02)
PPJ	0.33*	0.48**	0.13*			-0.38
	(0.14)	(0.11)	(0.06)			(0.26)
Guanxi with the HL × PPJ			-0.32*			
			(0.13)			
Variance of slope		0.07**	0.05			
		(0.02)	(0.04)			
Total Pseudo R²	0.36	0.48	0.51	0.06	0.13	0.25

Note: PDJ = perceived distributive justice; PIJ = perceived interactional justice; and PPJ = perceived procedural justice. Level 1 N = 203, Level 2 N = 22; $^{**}p <0.01$, $^*p <0.05$. We computed the total pseudo R^2 according to Snijders and Bosker (1999).

The cross-level moderating effect of perceived procedural justice on the individual relationship between *Guanxi* with the HL and perceived distributive justice was significant ($\gamma = -0.32$, $p < 0.05$). As shown in Figure 2, the relationship between *Guanxi* with the HL and perceived distributive justice was weaker when perceived procedural justice was higher ($\gamma = 0.04$, *n.s.*) than when it was lower ($\gamma = 0.69$, $p < 0.01$). This finding indicates that perceived procedural justice buffered the relationship between *Guanxi* with the HL and perceived distributive justice, supporting Hypothesis 3a.
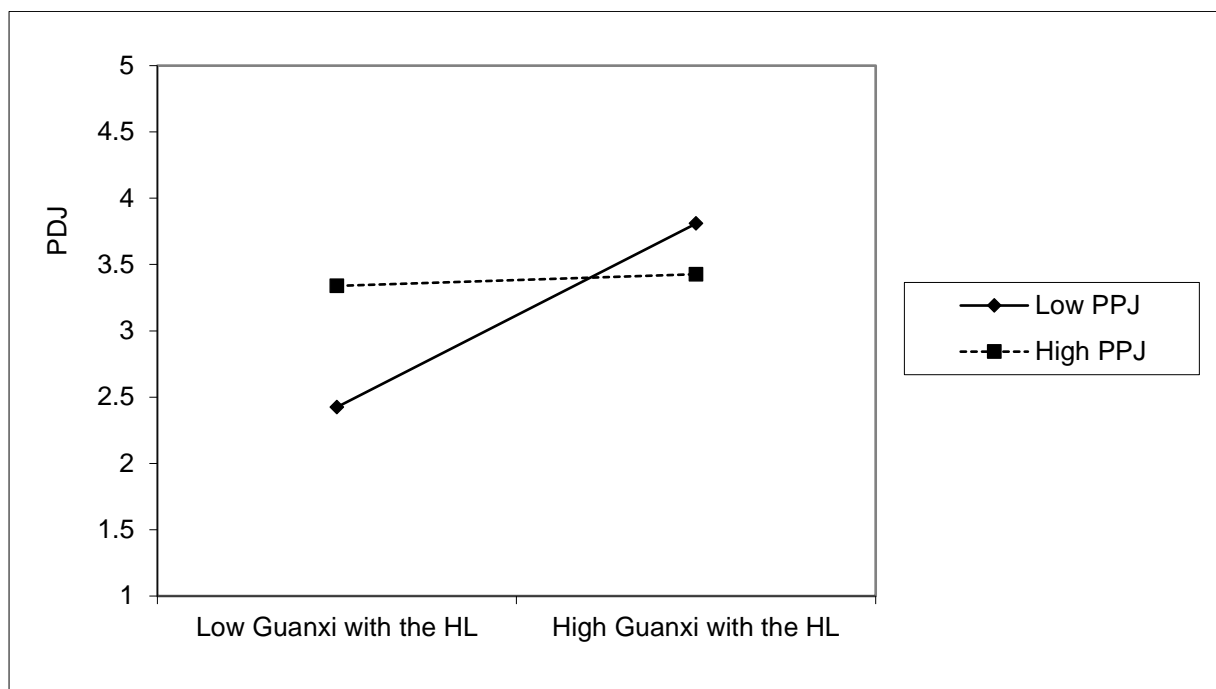
Figure 2. Perceived procedural justice (PPJ) moderates the effect of *Guanxi* with the HL on perceived distributive justice (PDJ).

After controlling for the main effect of *Guanxi* with the HL on perceived distributive justice ($\gamma = 0.37$, $p < 0.01$), *Guanxi* with the HL $\times$ the perceived interactional justice interaction effect on perceived distributive justice was not significant ($\gamma = -0.05$, *n.s.*). This means that Hypothesis 3b was not supported.

In summary, coworkers having more favorable *Guanxi* with the HL perceive higher levels of distributive justice in HL identification. Procedural justice at the project team level weakens the relationship between *Guanxi* with the HL and perceived distributive justice. In turn, a heightened distributive justice perception is associated with less turnover intention among employees in project teams. However, we did not find a significant moderating effect of interactional justice on the relationship between *Guanxi* with the HL and perceived distributive justice. Figure 3 illustrates the supported hypotheses.
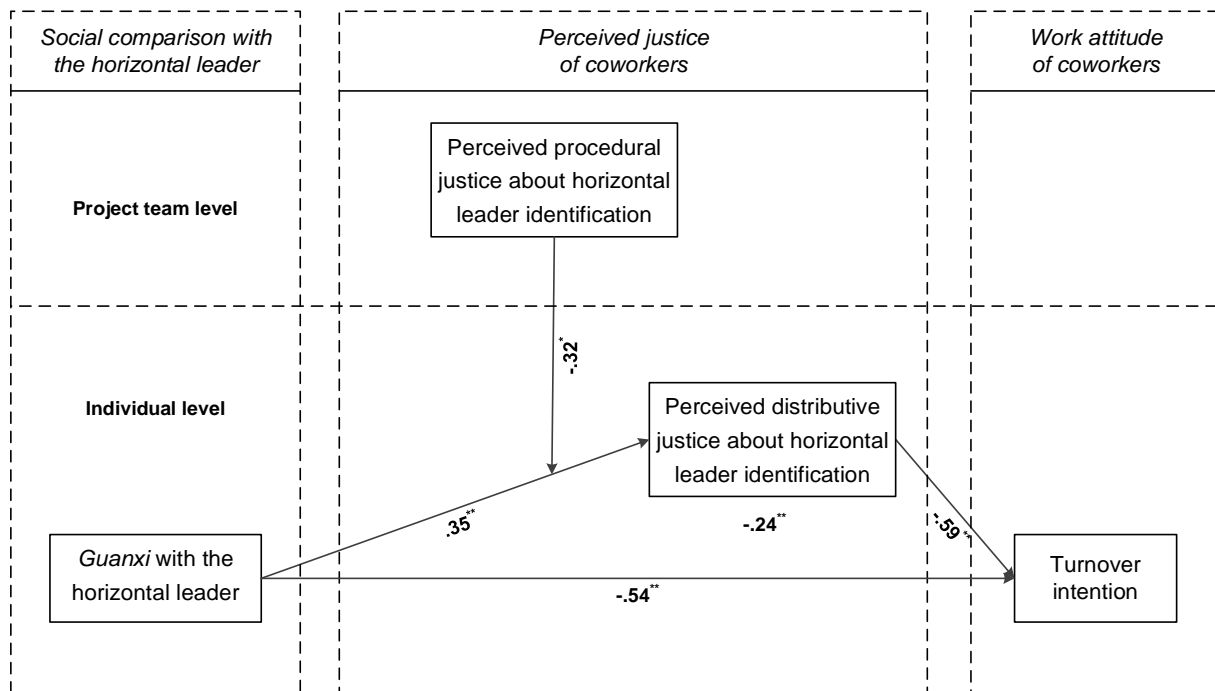

Figure 3. Supported hypotheses. Note: $^{**}p < 0.01$, $^{*}p < 0.05$.

Discussion

The 203 survey responses, indicating *Guanxi*'s role in project team members' perceptions of HL appointment, revealed support for Hypotheses 1, 2a, 2b, 2c, and 3a, while rejecting Hypothesis 3b. Now, we can accurately answer RQ1. Specifically, by integrating social comparison theory and organizational justice, we discovered that *Guanxi* with the HL is one of the determinants that coworkers will consider when making social comparisons and it will subsequently influence their perceived distributive justice and turnover intentions. In other words, team members with lower *Guanxi* with the HL will perceive lower levels of distributive justice and will have higher turnover intentions. Thus, our findings emphasize the impacts of "*Guanxi*" within Chinese project teams and provide empirical-based evidence to support the idea that inappropriate HL appointments will be harmful for project team members' work-related feelings and attitudes in Chinese contexts.

In terms of RQ2, our results revealed that procedural justice, in the process of HL identification, buffers the relationship between *Guanxi* with the HL and perceived distributive justice. As shown in Figure 2, in project teams with low levels of procedural justice during HL identification, *Guanxi* with the HL exerts a greater impact on perceived distributive justice. On the contrary, in project teams with high levels of procedural justice, even though coworkers who have not been identified as HLs may have low levels of *Guanxi* with the HL, they can still perceive higher levels of distributive justice. Therefore, to mitigate the potential negative effects of HL identification, the project manager should follow a fair and transparent procedure in the process of identifying a HL.

Theoretical Implications

This study is the first to develop a theory pertaining to the effects of HL identification

on coworkers in project teams. The HL's nature, born from team members and empowered by the vertical leader (the project manager), inspired us to integrate social comparison theory and organizational justice into this research. As a result, we were able to reveal the considered determinants, consequences, and buffering conditions when coworkers compare themselves to the HL. We discuss our theoretical implications for social comparison theory, organizational justice, and project management theory from these three perspectives.

Determinants

This study contributes to social comparison theory by verifying its application in project teams implementing horizontal leadership and confirming the effects of the comparison targets' characteristics on individuals' perceptions and judgments (Miceli & Castelfranchi, 2007). First, our findings confirmed the impact of *Guanxi* on employees' judgments regarding the fairness of job decisions (Sherf & Venkataramani, 2015), focusing on HL identification decisions in projects. Specifically, *Guanxi* with the HL is positively related to employees' justice perceptions and negatively correlated with their turnover intentions. In this regard, *Guanxi* is a significant dimension that coworkers contemplate during their social comparisons with the HL. Previous studies have supported a similar phenomenon (Miceli & Castelfranchi, 2007). In other words, coworkers having more favorable *Guanxi* with the HL had more positive work-related feelings (e.g., higher levels of distributive justice) in the HL identification.

Second, our research contributes to social comparison theory by highlighting contingency in its application. We controlled for similarity, another significant and widely proven characteristic of comparison targets (Miceli & Castelfranchi, 2007), but it had no obvious impact on perceived distributive justice. This finding has some theoretical implications and is explained as follows. Horizontal leadership is relatively informal and short-term (Zhu et al., 2019), and the opportunity to be selected as a future HL may emerge for those who are

similar to a current or former HL. Supporting this idea, Collins (1996) explored the potential positive effect of upward social comparisons with those who were similar to the referents (comparison with the HL in this study), finding that similarity with superior individuals improved their self-perceptions and faith in the possibility that they could become referents in the future. Thus, social comparison theorists should continuously develop connotations and verify the application of social comparison theory under different conditions. Specifically, our findings provide scholars with evidence to verify social comparison effects in new situations in which distribution is temporal (e.g., collective leadership in project teams).

Third, we also extend current knowledge in the field of project management by proposing that *Guanxi* among coworkers is a critical criterion in HL identification and has the potential to reduce negative consequences on coworkers. Earlier studies addressed HL identification criteria in projects and discussed the potential effects of supervisor-subordinate *Guanxi* on HL identification (Müller, Zhu, et al., 2018; Zhu et al., 2019). However, the effects of team-member *Guanxi* remained unclear. Thus, this study enriches this body of research by exploring impacts on coworkers who have never been identified as HLs.

Consequences

First, social comparison theorists have increasingly paid attention to exploring the work-related consequences of social comparisons on employees, such as perceived justice (Adams, 1963) and turnover intentions (Brockner & Kim, 1993). Combined with organizational justice, the present research identified these two as significant consequences of coworkers' social comparisons with the HL. These findings confirm the application of social comparison theory and organizational justice in project management, responding to Li et al.'s (2019) call to introduce classic organizational behavior theories in the context of projects to fill the deficiencies of the existing project management theoretical framework.

Second, scholars have discussed the potential advantages of horizontal leadership in project management. For example, Zhu et al. (2019) showed high confidence in the relationship between HLs and improved team performance, creativity, and innovation. Moreover, the literature has described the advantages of HL nomination as follows: (1) the project manager recognizes the individual's leadership abilities in a certain area (Zhu et al., 2019); and (2) there is a high possibility that an HL can become a vertical leader in the future (Müller, Zhu, et al., 2018). However, few studies have addressed HLs' influence on coworkers. This research revealed that appropriate HL identification, that is, selecting one who has a better *Guanxi* with their coworkers, will significantly improve other team members' perceptions of distributive justice, which will further reduce employees' turnover intentions. Our findings can enhance scholars' understanding of the full range of horizontal leadership effects within projects, especially the HL's importance in influencing coworkers' feelings and attitudes about their work.

Buffering Conditions

By integrating organizational justice, we identified perceived procedural and interactional justice as two critical conditions that can buffer the effects of *Guanxi* with the HL on coworkers' perceived distributive justice regarding HL identification. In line with previous research in other situations or industries, when a procedure is seen as fair employees perceive a higher level of distributive justice (Tornblom & Vermunt, 1999). However, the buffering effect of interactional justice is not supported, potentially because employees focused not only on interactional justice, but also on interactional justice differentiation. The latter signifies that managers may treat some employees with high levels of interactional justice and others differently. This is in line with previous findings, indicating that interactional justice differentiation can weaken the effects of interactional justice on work outcomes (He et al.,

2017). Hence, we question the significant role that has been assigned to interactional justice differentiation.

In a project with high levels of interactional justice differentiation, even though coworkers who have poor *Guanxi* with the HL may be treated respectfully by the project manager, they may still feel uncertain if they witness others being neglected. Specifically, this uncertainty may arise because of managers' justice differentiation. This may cause employees to worry that they may experience low interactional justice in the future despite being treated fairly in the present (Lind & Bos, 2002). From this perspective, our findings contribute to organizational justice literature by emphasizing that, in addition to considering interactional justice, researchers and practitioners should also consider interactional justice differentiation in related contexts.

Managerial Implications

This study also has some practical implications. First, *Guanxi* with the HL, unlike similarity with the HL, can predict coworkers' perceptions of distributive justice and ultimately contribute to turnover intentions. This finding can inform the processes used to identify HLs in projects. To select the optimal HL for a project in China, the vertical leader should consider a person's *Guanxi* with   coworkers (especially those coworkers who also have important roles) in addition to other criteria, such as professionalism, personality, and attitude (Müller, Zhu, et al., 2018). In this way, some of the negative effects of HLs can be avoided in project teams. For projects in other countries with different cultural backgrounds,   project managers should pay close attention to similar phenomena concerning interpersonal relationships in their countries, such as *Yongo* in Korea (Horak & Taube, 2016) and *exchange* in western countries (Chen et al., 2009).

Second, our results demonstrate the roles of procedural and interactional justice in the

relationship between social comparison and perceived distributive justice. With horizontal leadership becoming increasingly prevalent in projects worldwide, project managers in any country should establish a clear process and criteria for HL identification, as discussed in Müller, Zhu, et al. (2018). A fair process increases coworkers' perceptions of distributive justice. However, with respect to interactional justice, project managers should also pay attention to the use of interactional justice differentiation in the identification of HLs.

Third, our findings offer critical implications for HLs. *Guanxi* with the coworkers is dynamic and changes as a function of interpersonal incidents (Chen & Peng, 2008). Given the significance of *Guanxi*, HLs in Chinese projects should actively take measures to develop their *Guanxi* with other team members after being assigned the HL role. In other countries, HLs can actively develop interpersonal relationships by engaging in both work-related and non-work related interactions with coworkers. In this way, HLs can develop better *Guanxi* or interpersonal relationships with their coworkers and avoid potential negative consequences, such as the resignation of key project team members.

Limitations and Future Directions

Although our research has a robust theoretical framework applied to the under-researched domain of horizontal leadership and adopts rigorous multilevel modeling empirical analyses, it also has limitations that provide a foundation for future research. First, although we presented a mediation process for *Guanxi* with the HL in project teams, our cross-sectional design cannot rule out the possibility of reverse causality. Even though we have strong theoretical arguments for the model's directions, future studies should use a longitudinal design to further develop moderated mediation. Second, the measurements of the key constructs were self-reported; thus, subsequent research should utilize larger datasets when replicating the model. Third, we manipulated *Guanxi* with the HL as a unidimensional construct, but *Guanxi*

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could be a concept with multiple dimensions. Many *Guanxi* researchers have identified its dimensions as affective attachment, personal-life inclusion, and deference, finding that their effects on employee turnover might be different (Chen et al., 2009). Thus, the possible dimensions of *Guanxi* with the HL and their unique effects need to be addressed in future research.

Future research should also explore whether interactional justice differentiation is a conditional boundary that can increase the perceived distributive justice of coworkers who have poorer *Guanxi* with the HL. This suggestion is based on the observation that interactional justice differentiation increases the perception of distributive justice (Brimecombe, 2012). Finally, *Guanxi* is a local phenomenon, deeply rooted in Chinese culture, but similar phenomena can be found in other countries, as noted above (Chen et al., 2009; Horak & Taube, 2016). Thus, the prerequisites for the implementation of our findings should fully consider similar local conditions (e.g., *Yongo* and *exchange*). Future research should further test this study's employed mechanism in other cultural contexts and make adjustments by replacing *Guanxi* with   local phenomena, such as *Yongo* in Korea.

Conclusion

Integrated in social comparison theory and organizational justice literature our findings revealed that perceived distributive justice plays a mediating role between coworkers' *Guanxi* with the HL and their turnover intentions. The results also showed that the relationship between *Guanxi* with the HL and perceived distributive justice is conditional on procedural justice. *Guanxi* with the HL exerts a lower impact on perceived distributive justice for coworkers in project teams with high-level procedural justice in HL identification. Our findings emphasize the various roles that different types of justice play in the mechanism of HLs' influence on their coworkers and the importance of *Guanxi* in Chinese project teams. This study's major

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contribution lies in identifying the role of *Guanxi* in team members' reactions to the HL appointment of colleagues. It is now up to academics and practitioners to consider these findings in their future work.

Data Availability

All data, models, or codes that support the findings of this study are available from the corresponding author upon reasonable request.

Acknowledgements

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