



Multi-Level Effects of Humble Leadership on Employees' Work Well-Being: The Roles of Psychological Safety and Error Management Climate

Zheng Zhang^{1*} and Peng Song²

¹ School of Business Administration, Shanxi University of Finance and Economics, Taiyuan, China, ² College of Business and Economics, University of Australian National, Canberra, ACT, Australia

OPEN ACCESS

Edited by:

Fu-Sheng Tsai,
Cheng Shiu University, Taiwan

Reviewed by:

He Ding,
North China Electric Power University,
China

Tores P. G. Theorell,

Karolinska Institutet (KI), Sweden

Lynda Jiwen Song,
University of Leeds, United Kingdom

*Correspondence:

Zheng Zhang
565480364@qq.com

Specialty section:

This article was submitted to
Organizational Psychology,
a section of the journal
Frontiers in Psychology

Received: 12 June 2020

Accepted: 22 October 2020

Published: 11 November 2020

Citation:

Zhang Z and Song P (2020)
Multi-Level Effects of Humble
Leadership on Employees' Work
Well-Being: The Roles
of Psychological Safety and Error
Management Climate.
Front. Psychol. 11:571840.
doi: 10.3389/fpsyg.2020.571840

Employees' work well-being (WWB) is vital to employees' performance and organizations' sustainable development. This study aims to explore the role of psychological safety and error management climate (EMC) between humble leadership and WWB in Chinese organizations. Drawing upon social information processing theory, a multi-level study was conducted to test the underlying mechanisms between humble leadership and employees' WWB. A time-lagged data of 221 team members was collected from 12 small and medium sized companies in China. Results showed that team-level humble leadership was positively related to WWB. Psychological safety and EMC both played a partial mediating role linking humble leadership and WWB. EMC positively moderated the relationship between humble leadership and psychological safety. This paper contributes to revealing the multi-level effects of humble leadership on work well-being. These findings also provide some important implications for managerial practices.

Keywords: humble leadership, work well-being, psychology safety, error management climate, multi-level effect

INTRODUCTION

With the rise of positive psychology and psychology of sustainability (Di, 2017), work well-being (WWB), a form of well-being, has attracted much attention from academia (Liu et al., 2009). WWB can bring a variety of positive outcomes to employees and organizations, such as higher productivity, performance, and innovativeness (Lin et al., 2014; Honkaniemi et al., 2015; Kowalski and Loretto, 2017). Therefore, exploring different ways to improve employees' WWB is of great significance (Choi et al., 2017).

Previous research has found that WWB is influenced by individual differences and context factors, such as positive emotions (Siu et al., 2015), work-related stress (Siu et al., 2005), high-performance work systems (Zhang et al., 2013), and organizational justice (Moliner et al., 2008). Throughout the research on the predictors of WWB, leadership has been identified as a key influential factor (Choi et al., 2017; Zhong et al., 2020). Studies have explored the influence of ethical leadership (Chughtai et al., 2015), transformational leadership (Liu et al., 2009), and authentic

leadership (Rahimnia and Sharifirad, 2015) on WWB. However, we still know little about whether team-level humble leadership affects WWB, especially in the Chinese context (He et al., 2019). Humble leadership as a bottom-up leadership style, may provide more emotional and psychological resources with employees, through appreciating followers' strengths and contributions, and building high quality relationship with them (Zhang and Liu, 2019), which increase the likelihood for employees to gain WWB. Because prior most studies on humble leadership and WWB were based on a single level (Zhong et al., 2020), it may hinder the accumulation of knowledge about the cross-level influence of team humble leadership on WWB and is not conducive to our systematic understanding the impact of group-level phenomenon (i.e., humble leadership) on WWB. Additionally, if we only suppose humble leadership at the individual level, it may indicate that all employees are independent individuals. In doing so, it ignores the effect of group-level characteristics on dependent variables (Rousseau, 1985), which in turn, fails to reveal the complex formation mechanism of WWB and reduces the external validity of the research results (Zhang, 2010). Indeed, employees are nested within a particular work group or team (Zhang, 2010), their WWB can be impacted by a high-level construct (i.e., humble leadership). A more appropriate analytical method is to consider employees as groups of followers in relation to team leaders in a multilevel approach (Chen et al., 2017). Hence, the current study makes a theoretical contribution by examining the cross-level effect of humble leadership on WWB in Chinese societies.

Although a link exists between humble leadership and WWB (Nielsen and Marrone, 2018; Zhong et al., 2020), little is known on the multi-level mechanisms of this relationship, which yields an incomplete picture of how humble leadership influences WWB. Exploring the influence of humble leadership on employee affect is important for gaining a more holistic theoretical understanding of the impact of humble leadership on employees (Wang L. et al., 2018). Meanwhile, our study also responds to the call for more research to explore the mediating mechanisms between humble leadership and WWB (Zhong et al., 2020). Thus, the second objective of our study is to uncover the underlying process through which humble leadership can affect WWB, based on social information processing (SIP) theory (Salancik and Pfeffer, 1978). Humble leadership, as a vital source of social information (Zhong et al., 2020), may send some positive signals by encouraging leader-member role reversal and legitimating uncertainty, which helps employees to eliminate interpersonal risk (Hu et al., 2018). Psychological safety can capture the individual perception of interpersonal risk (Edmondson, 1999), which in turn, influences individuals' positive work attitude or well-being (Sharifirad, 2013; Newman et al., 2017). Additionally, Owens and Hekman (2012) proposed follower perceptions as a mechanism—legitimizing followers' developmental journal and legitimizing uncertainty, which align with psychological safety (Walters and Diab, 2016). Thus, we propose that psychological safety will be the mediating variable that links humble leadership to WWB.

Furthermore, humble leaders are willing to acknowledge their limitations, faults, and mistakes, which fostered a perception

that making mistakes is a normal and even a beneficial part of learning (Owens and Hekman, 2012). We further propose team error management climate (EMC)—a sharing perception about communicating errors, sharing and learning error knowledge, and helping in faulty situations (Van Dyck et al., 2005)—can capture the above perception in a team context. That is, humble leadership may influence employees' well-being through EMC. As SIP theory posits, leaders act as vital sources of social information, which can shape employees' perceptions, attitudes and behaviors (Salancik and Pfeffer, 1978). EMC is regarded as team members' shared belief in making mistakes is safe, after they receive humble leaders who send messages of being open and teachable (Liu et al., 2017). Schein (1985) pointed out that leaders make great efforts to integrate their values and beliefs into team members' shared understanding, which in turn, affects their attitudes. Previous research also indicated that team leadership may influence employee outcomes through team climate (Walumbwa et al., 2008; Walumbwa et al., 2010). Thus, we also examine the mediating role of EMC in the humble leadership and WWB linkage.

However, Owens and Hekman (2012) indicated that humble leadership may not always be effective, it may need supportive or resourceful environments to flourish. Following this idea and based on existing psychological safety literature (Cigularov et al., 2010; Hu et al., 2018), we propose that EMC is a possible moderator to explain the effects of humble leadership on psychological safety. Team with a strong EMC do not punish employees who make errors, but instead try to understand their errors, help them deal with the errors, and learn from these errors (Van Dyck et al., 2005; Guchait et al., 2018). In such teams, employees may have low interpersonal risk when they make errors. To the best of our knowledge, no study has examined the moderating role of EMC on the abovementioned relationships. Thus, by identifying the boundary condition of humble leadership on psychological safety, this study can contribute to the further understanding of the effectiveness of humble leadership. It is worth noting that EMC may have a direct effect on psychological safety. However, here we only explore the moderating role of EMC on the relationship of humble leadership and psychological safety, in order to examine the indirect role of EMC on psychological safety and expand the theorizing toward the moderating role.

In summary, this study is designed to examine the relationship between team-level humble leadership and WWB and the roles of psychological safety and EMC in this relationship. This study provides important implications for Chinese team management.

LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

Employees' WWB

Well-being is a broad concept, and the academic circle has not reached a consensus on its definition (Zheng et al., 2015). There are two major philosophical views about well-being: one is hedonism, which defines well-being as the subjective experience

of happiness; the other is eudemonism, which considers well-being as the result of individual self-actualization (Ryan and Deci, 2001). Diener (1984) followed the hedonism orientation and proposed the subjective well-being (SWB), while psychological well-being (PWB) was proposed by Ryff and Singer (2008) who inherited the eudemonism orientation. Later, some scholars took an integrative perspective to examine well-being by combining SWB and PWB, but other researchers questioned the utility of the distinction in empirical work because of their strong correlation (Fisher, 2010). In summary, different philosophical basis leads to conceptual model and research paradigms, which in turn, result in the complexity and ambiguity of employees' well-being construct (Liu et al., 2009; Sharifirad, 2013). At present, researchers defined and operationalized the construct of employees' well-being for their own research needs and purposes (Zheng et al., 2015). WWB is a context-specific well-being, and its definition also varies greatly, but using a multiple-measure approach to measure WWB is a trend (Zheng et al., 2015). For example, Warr (1987) has categorized concepts such as job satisfaction, job-related tension, and job-related depression as WWB. Liu et al. (2009) and Sharifirad (2013) have both proposed that WWB comprises job satisfaction, perceived work stress, and stress symptoms. Fisher (2010) argued that although a number of constructs were used to reflect some form of WWB, these constructs have in common that all refer to pleasant judgments and pleasant experiences at work. Recently, Zheng et al. (2015) also proposed that WWB is composed of pleasant judgments (i.e., job satisfaction) and pleasant experiences (i.e., positive emotions) after they reviewed employees' well-being literature and interviewed Chinese samples. Although WWB is positively related to job satisfaction and positive affect, WWB still has a good discriminant validity (see Zheng et al., 2015). Following Fisher (2010) and Zheng et al. (2015), in present study, we define WWB as employees' positive judgments and affect about work.

Humble Leadership and WWB

Humility has a profound historical root. Some of the earliest writings regarding this topic come from Greek tradition and Chinese Taoism tradition (Morris, 2005). Researchers have made rapid progress in humility studies in recent 10 years, especially in the field of humble leadership. Humble leadership mainly includes two perspectives: trait view and behavior view, the former underlined leader humility is a rare personality trait. However, with the practice turns of leadership research, many scholars have begun to define humble leadership from the perspective of behavior (Owens and Hekman, 2012). Humble leadership is defined as a leadership style that leaders who admit their own mistakes and limitations, highlight followers' strengths and contributions, and model teachability (Owens and Hekman, 2012). As a bottom-up leadership, humble leadership has some differences with similar constructs, such as authentic leadership and inclusive leadership. Both authentic leadership and humble leadership emphasize expressing yourself genuinely, but the former is subordinate-orientation, the latter is dual-orientation, that is, humble leaders improve themselves by learning while focusing on the

development of employees (Ladkin and Taylor, 2010; Owens and Hekman, 2012). Furthermore, inclusive leadership and humble leadership both underline keeping openness to others opinions, appreciating employees' strengths and contributions, and maintaining high quality exchange relationship (Nemphard and Edmondson, 2006; Owens and Hekman, 2012), but humble leaders encourage leader-member role reversal, learn modestly and give psychological freedom to employees (Owens and Hekman, 2012), which are different from inclusive leaders. Previous studies have demonstrated that humble leadership has a positive impact on employees' attitudes or emotions, such as job satisfaction, engagement (Nielsen et al., 2010), relational energy (Wang L. et al., 2018), and psychological empowerment (Jeung and Yoon, 2016).

We propose that humble leadership may positively affect employees' WWB. First, humble leaders exhibit clear self-consciousness, seek to be taught by employees, and appreciate followers' strengths and contributions; and thus, employees may perceive these social cues as initiating a leader-employee role reversal (Wang L. et al., 2018), which can enhance employees' perceived trust and support from leaders (Owens and Hekman, 2012). Research has shown that when subordinates think their leaders are trustworthy, they will have positive cognition evaluation of their work (Dirks and Ferrin, 2001). Second, humble leaders appreciate employees' strengths and contributions publicly and legitimize and facilitate their growth and improvement, which can provide positive psychological benefits and freedom and enhance employees' WWB (Fritz et al., 2011). Finally, humble leadership has a relational identity orientation (Nielsen et al., 2010), which makes it easier to develop a good LMX with employees (Owens and Hekman, 2012). When employees have high LMX with their leaders, they could obtain more resources, information, and empowerment (Liden et al., 1997), which in turn, lead to positive attitudes and effects, such as WWB (Sparr and Sonnentag, 2008). Recent study indicated that humble leadership is positively related to WWB (Zhong et al., 2020). Therefore, we propose:

Hypothesis 1: Humble leadership is positively related to WWB.

Mediating Role of Psychological Safety

Psychological safety refers to individuals' perceptions of the consequences of interpersonal risks in their work environment (Edmondson, 1999). The higher the individuals' psychological safety, the lesser they have to fear the negative consequences of their own image, status, and career when they show and employ themselves freely (Kahn, 1990). Psychological safety often been conceptualized as a team-level construct (e.g., Edmondson, 1999). However, recent research has begun to explore psychological safety at the individual and organizational levels (Newman et al., 2017). In this study, we focus on the individual level of psychological safety, in order to unveil the individual psychological mechanism of team level of humble leadership on WWB.

We argue that humble leadership has a positive effect on psychological safety. First, from the perspective of SIP theory,

humble leadership is an important social cue, which may send positive social information to employees (Wang L. et al., 2018). For example, humble leaders who exhibit openness to new ideas, have a habit of listening before speaking, and appreciate others' contributions (Owens and Hekman, 2012; Randel et al., 2017) may convey the information that leaders are inclusive (Carmeli et al., 2010). When perceived by employees, such information will help improve their psychological safety (Nembhard and Edmondson, 2006; Carmeli et al., 2010). Importantly, humble leaders encourage employees to keep trying and perceive mistakes as tools for growth and take responsibility for employees' mistakes (Owens and Hekman, 2012). These cues send signals to employees that making mistakes and taking risks are acceptable (Hu et al., 2018). Thus, employees are likely to show themselves freely or take risks without fear of adverse influences. Second, with the role modeling of humble leaders, team members will also imitate their leaders when it comes to showing their own shortcomings, appreciating the advantages and contributions of others, and learning modestly (Bandura, 1977), which promotes the formation of collective humility in the team (Owens et al., 2013; Rego et al., 2017). Moreover, the higher the collective humility, the higher quality of interpersonal relationships will develop among team members (Peters et al., 2011). Carmeli et al. (2008) have suggested that high interpersonal relationships are positively related to psychological safety. Finally, Edmondson (2004) has noted that three types of leaders' behaviors are the antecedents of psychological safety. These behaviors include accessibility, continuous invitation of input, and modeling openness and fallibility, all of which can be shown by humble leaders (Kayla and Walters, 2016). Empirical studies have shown that humble leadership can increase employees' psychological safety (Kayla and Walters, 2016).

We further argue that psychological safety is positively related to WWB. Although direct empirical evidence supporting the relationship between psychological safety and WWB is scarce, indirect evidence can be found in some theories and literature. For example, employees with a high level of psychological safety appear to experience a great sense of freedom, support, and respect at their work (Chen et al., 2014). According to social exchange theory (Blau, 1964), employees are likely to reciprocate their leaders' or organizations' good intentions with positive attitudes or affection. Moreover, from the perspective of conservation of resources theory (Hobfoll, 1989), individuals are willing to make resource investment when the external threat is low. Thus, individuals are likely to invest their resources (i.e., WWB) to their works when their psychological safety is high (Newman et al., 2017). Sharifirad (2013) has pointed out that psychological safety is positively related to employees' well-being (job satisfaction, work-related stress, and stress symptoms). Chen et al. (2014) have indicated that a significantly positive relationship exists between psychological safety and affective commitment, which is a dimension of WWB (Heffernan and Dundon, 2016). Accordingly, the higher the psychological safety of employees, the greater the positive attitudes and affection they exhibit (Kirk-Brown and Van Dijk, 2016).

According to SIP theory (Salancik and Pfeffer, 1978), leadership behavior is a social information, which influences

individuals' subsequent attitudes and behaviors by affecting their psychological perception. Relevant study has shown that transformational leadership has a positive impact on employees' WWB through psychological safety (Sharifirad, 2013). We propose that humble leadership has a positive effect on employees' WWB through psychological safety. Thus, we propose:

Hypothesis 2: Psychological safety mediates the relationship between humble leadership and WWB.

Mediating Role of EMC

Error management climate refers to "shared practices and beliefs related to communicating errors, sharing error knowledge, helping in faulty situations, and quickly detecting and handling errors" (Van Dyck et al., 2005, p. 1229). In this study, we focus on team level EMC, and argue that EMC may mediate the relationship between humble leadership and WWB.

Social information processing theory suggests that leader behavior as a vital social information cue is helpful to shape employees' perceptions about the work environment, and in turn, affects individuals' attitudes and behaviors (Salancik and Pfeffer, 1978). Many studies pointed that leaders as climate engineers and they play an important role in the development of climate (Naumann and Bennett, 2000; Walumbwa et al., 2010), and the corresponding climate may mediate group-level leader behavior on employees' outcomes (Walumbwa et al., 2008). For example, Walumbwa et al. (2008) found that procedural justice climate mediated the relationship between contingent reward leader behavior and employee satisfaction with supervisor, organizational commitment, and OCB. Whereafter, Walumbwa et al. (2010) identified that procedural justice climate and service climate mediated the link between servant leadership and OCB. Thus, based on SIP theory and team climate literature, we propose humble leadership may influence WWB through fostering a specific work team climate (i.e., error management climate). We first argue that humble leadership is positively related to EMC. Humble leaders acknowledge personal faults and mistakes, and encourage team members to learn from mistakes. These may send some signals that making a mistake is normal, and learning and growing from mistakes is more important than blaming (Owens and Hekman, 2012). For this reason, we speculate that humble leadership may positively related to EMC. In addition, leaders' social modeling will impact employees' attitudes toward errors and trigger employees to imitate their leaders (Rego et al., 2017). Employees are more likely to communicate their mistakes, share error knowledge and express more inclusiveness when others make mistakes (Zhong et al., 2020), which can help to create a climate of error management. Furthermore, humble leaders give more psychological freedom to employees and take responsibility for their team (Owens and Hekman, 2012), employees will feel encouraged and supported by their leaders, and they will do more trial and error without worrying about failure (Owens and Hekman, 2012), thus, it can help to shape a good EMC.

We further argue that EMC is positively related to WWB. A team with a high level of EMC encourages team members to communicate, help and learn from each other after error happens (Maurer et al., 2017), it may help employees to perceive coworker support (Casey and Krauss, 2013). Having support from coworkers can influence employees' attitude and positive feelings toward their jobs (Karatepe, 2012), and lessen emotional exhaustion (Zhong et al., 2020). Additionally, in a high level of EMC, team sees errors as a natural phenomenon and an opportunity to learn (Keith and Frese, 2005), team members are more willing to discuss errors, which help to reduce stress and improve positive emotion. In contrast, employees are likely to be anxious about being punished for their mistakes in the team with high EMC, this may induce job stress and fatigue, which in turn influence WWB negatively (Lu et al., 2011). As such, we propose:

Hypothesis 3: EMC mediates the relationship between humble leadership and WWB.

Moderating Role of EMC

Researchers have suggested that organizational climate can provide a context in which individuals evaluate workplace safety (Mearns and Flin, 1999; Cigularov et al., 2010). In addition, Owens et al. (2013) have noted that context factors could influence the effectiveness of humble leadership.

We argue that EMC moderates the relationship between humble leadership and psychological safety. If a team has a high level of EMC, then team members consider errors as a common phenomenon (Keith and Frese, 2005). EMC emphasizes employees' learning, communication, and development as a result of errors (Maurer et al., 2017), and encourages members to voice their views, discuss mistakes openly, and learn from their errors (Rupert et al., 2019). Therefore, team members do not fear being blamed for making mistakes. Humble leaders legitimize employees' processing of development by telling them that making mistakes is a normal and a beneficial part of learning (Owens and Hekman, 2012). EMC is consistent with the information conveyed by humble leaders. Thus, EMC can provide a context that strengthens the influence of humble leaders, which in turn, enhances employees' psychological safety. By contrast, if a team has a low level of EMC, team members view errors negatively and emphasize punishing and blaming errors (Van Dyck et al., 2005). Employees will not likely show themselves freely in such a climate, although

team leaders take responsibility for errors. Thus, if a team lacks a shared belief in error management, humble leaders are less likely to provide employees with psychological safety. Additionally, Wang X. et al. (2018) have pointed out that employees tend to believe that their leaders are trustworthy and do good in exchange under a high level of EMC. Thus, employees may treat humble leadership positively under high EMC, which in turn, improves the positive influence of humble leadership on psychological safety. Accordingly, we propose:

Hypothesis 4: EMC positively moderates the relationship between humble leadership and psychological safety. That is, the higher the EMC, the stronger the positive relationship between humble leadership and psychological safety.

Moderated Mediation Effect

Combined Hypothesis 2 and Hypothesis 4, we propose a moderated mediation model, that is, the mediating role of psychological safety between humble leadership and WWB will be moderated by EMC. When EMC is higher, humble leadership has a stronger effect on employees' psychological safety, and the improvement of psychological safety is likely to increase their perception of freedom, support, and respect at their work (Chen et al., 2014), which in turn, enhancing WWB. In contrast, when EMC is lower, it may weaken the stimulating effect of humble leadership on employees' psychological safety, and the lower level of psychological safety may lead to passive attitudes and emotions toward work (Nixon et al., 2015; Kirk-Brown and Van Dijk, 2016), which ultimately weakened the WWB of employees. Thus, we propose:

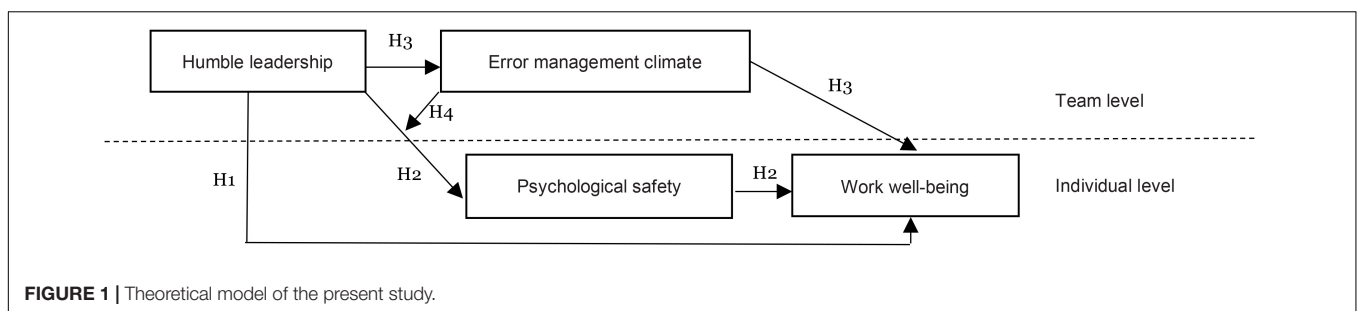
Hypothesis 5: EMC moderates the indirect effect of humble leadership on WWB through psychological safety. That is, with the improvement of EMC, the mediating role of psychological safety between humble leadership and WWB becomes stronger.

The hypothesized model is presented in **Figure 1**.

METHODS

Procedure and Samples

The research data, adopting the field survey at two time points, were collected from 12 small and medium sized



companies (the number of employees is less than 200) located in Taiyuan, Zhengzhou, and Beijing, China. Among these companies, six were in the service industry, four were in the manufacturing industry and two were in the education industry. We communicated fully with the company leaders in advance and coded the participants after the leaders' agreement. Before sending out the questionnaires, we introduced the purpose of our study to the participants and emphasized that this survey was purely academic and fully anonymous and voluntary. At time 1, participants were asked to assess humble leadership, psychological safety, EMC, and demographic variables. Two months later, they reported their WWB at time 2. After the two-wave questionnaires were matched, and teams with less than 3 members were deleted, 221 valid samples of 67 teams were finally obtained after eliminating the invalid questionnaires, the effective recovery rate is 84.5%. Each team leader rated 3.3 employees on average. Among the 221 employees, 51.1% were male, 54.3% of participants had a bachelor's degree, and 33.9% had a junior college degree. The average age was 30.81 years ($SD = 0.51$). The job nature of these employees is mainly marketing, technology, and HR. Among the 67 leaders, 69.8% were male, 13.7% had a master degree, 50.7% had a bachelor's degree, 27.4% had a junior college degree, and the average age was 38.88 years (standard deviation = 10.11).

Measures

All measures used a five-point Likert scale (1 = strongly disagree to 5 = strongly agree) and employee self-reported method. We translated the English scale to Chinese under a standard back-translation method (Brislin, 1970).

Humble Leadership

We used a nine-item scale developed by Owens et al. (2013) to measure humble leadership. A sample item was "Our team leader actively seeks feedback, even if it is critical." Cronbach's α was 0.87 in this study. Given that humble leadership was a team-level construct (Hu et al., 2018), we used within-group reliability (ICC1), reliability of group mean (ICC2), and within-group agree indices (rwg) to justify whether aggregating individual members' rating to the team level was appropriate. ICC1, ICC2, and rwg were 0.24, 0.52, and 0.91, respectively. These three indicators were well above the acceptable values of 0.12, 0.47, and 0.70 (James, 1982), supporting aggregation.

Psychological Safety

We used a seven-item scale developed by Edmondson (1999) to access psychological safety. A sample item was "Taking risks in this team is safe." Cronbach's α was 0.75 in this study.

Error Management Climate (EMC)

To measure team-level EMC, we used a 16-item scale adopted from Cigularov et al. (2010), which includes learning from errors (four items), thinking about errors (five items), error competence (three items), and error communication (four items). Sample items were "When mastering a task, our team can learn a lot from their mistakes" and "When someone makes an error in our team, he/she shares it with others to prevent the occurrence of

the same mistake." Cronbach's α was 0.87 in this study. ICC1 and rwg of EMC were 0.15 and 0.96, exceeding the cut-off values of 0.12 and 0.70, respectively. However, ICC2 was 0.36, which was below the acceptable value of 0.47. This result may be due to fewer team members (i.e., the average team size is less than eight persons) (Bliese, 2000). Chen and Bliese (2002) pointed out that if the aggregation was supported by theory and rwg and between-group variance were significant, aggregation was feasible. Based on this finding, we conducted a one-way analysis of variance (ANOVA). The result showed that a significant between-group variance exists in team-level EMC ($F = 1.59, p < 0.05$).

Work Well-Being (WWB)

Work well-being was assessed using Zheng et al. (2015) six-item scale. A sample item was "In general, I feel fairly satisfied with my present job." Cronbach's α was 0.84 in this study. This scale was used in many studies, such as Miao and Cao (2019) and Fu et al. (2020).

Control Variables

To eliminate the possible influence of other variables on WWB, we controlled for gender, age, education of employees, and teams' size and development stage, because previous study has found these variables have an influence on WWB (Paulin and Griffin, 2016; Zhong et al., 2020). Gender may influence WWB, for female employees, they may have fewer positive job attitudes or emotions than male employees because they have difficulties in getting promoted (Clark, 1997). Age also may be positively related to WWB, that is because older employees have better supplies-values fit, they may get more positive perceptions from jobs and workplaces (Piszczek and Pimputkar, 2020). In addition, education level differences may have an impact on WWB, because compared with higher educated employees, lower educated employees may have a high physical workload and less favorable work environment (Akkermans et al., 2009). Furthermore, team size may affect employees' WWB. Prior research indicated that as the team size becomes larger, members have difficulty in maintaining good interpersonal relationships and getting individual recognition, and their leaders are less likely to display consideration behaviors. Therefore, they may experience less satisfaction (Mullen et al., 1989). Finally, the team development stage may be related to WWB, because members' trust and interpersonal relationship is lower in the early stages of team development (e.g., forming and storming) than the late stages (e.g., maturing and declining), there are a lot of conflicts within the team, thus, they may not get many positive emotions from work (Tuckman, 1965).

RESULTS

Preliminary Analysis

Confirmatory Factor Analysis (CFA) and Common Method Variance (CMV). We used Harman's single factor test to check for possible CMV (Podsakoff et al., 2003). As stated by this approach, CMV will exist if a single factor explains most of the covariance of all variables. An exploratory factor analysis (EFA) results

showed that the first unrotated factor explains 28.44% of the variance in our research's variables. The variance explained by the first factor does not exceed 40%, we can conclude the CMV is not serious in our study (Ashford and Tsui, 1991). Additionally, we conducted CFA by using Mplus 7.0 to examine the distinctiveness of member-rated variables (i.e., humble leadership, psychological safety, EMC, and WWB). Considering the small sample size relative to the measurement items (Liu et al., 2013), we used random item parceling for every construct before conducting the analyses. Because random algorithm is not affected by scales and samples (Matsunaga, 2008). As shown in **Table 1**, the hypothesized four-factor model was a better fit to the data than other alternative models. Given that we collected data from the same employees at the same time, this study examined CMV by using the unmeasured latent method factor approach (Podsakoff et al., 2003). Specifically, we added one common factor with all the measures as indicators to the four-factor model and contrasted the fit index. If the five-factor model's (i.e., adding the common factor) fit index improved significantly compared with the four-factor model, then CMV exists. The five-factor model's χ^2 , CFI, TLI, and RMSEA were 41.42, 0.97, 0.96, and 0.06, respectively. The χ^2 was changed significantly ($\Delta\chi^2 = 11.53$, $\Delta df = 2$), given that it was easily influenced by the sample size. However, other fit indices did not improve significantly (both less than 0.02) (Williams et al., 1989). Hence, CMV was not a serious problem in this study. Furthermore, we also examined the construct validity by performing a multi-level CFA analysis according to Dyer et al. (2005) five-steps procedure. Results indicated that the fit indexes of multi-level model ($\chi^2 = 51.50$, $df = 48$, CFI = 0.99, TLI = 0.99, RMSEA = 0.02) are better than the single-level model ($\chi^2 = 29.89$, $df = 21$, CFI = 0.99, TLI = 0.98, RMSEA = 0.04). Thus, our data more fits a multi-level factor structure.

Descriptive Statistics

Table 2 shows the means, standard deviations, and correlations among measures at the individual and team levels. PS is positively related to WWB ($\beta = 0.42$, $p < 0.01$), and HL is positively related to EMC ($\beta = 0.66$, $p < 0.01$). The correlations are lower than 0.75 of the multicollinearity thresholds (Tsui et al., 1995).

Hypothesis Tests

HLM6.08 was used to test the cross-level effect of this study. Following Hofmann and Gavin's (1998) suggestions, we used grand-mean centering's team-level and individual-level variables for analysis. First, we examined two null models, which were used

TABLE 2 | Means, standard deviations, and correlations among variables.

| Variable | M | SD | 1 | 2 | 3 | 4 |
|----------------------------|-------|------|-------|--------|--------|--------|
| Individual-level | | | | | | |
| (1) Gender | 1.49 | 0.51 | | | | |
| (2) Age | 30.81 | 8.57 | -0.04 | | | |
| (3) Education | 3.40 | 0.73 | -0.03 | 0.24** | | |
| (4) PS | 3.45 | 0.64 | 0.05 | 0.20** | 0.11 | |
| (5) WWB | 3.88 | 0.65 | -0.06 | 0.25** | 0.14* | 0.42** |
| Team-level | | | | | | |
| (1) Team size | 3.29 | 0.71 | | | | |
| (2) Team development stage | 2.27 | 0.68 | 0.11 | | | |
| (3) HL | 3.84 | 0.44 | 0.16 | 0.15 | | |
| (4) EMC | 3.99 | 0.30 | 0.09 | 0.11 | 0.66** | |

*n = 221 individuals, N = 67 teams. For gender, male = 1, female = 2. For age, the measure is the individuals' real age. For education, doctoral degree = 1, master degree = 2, bachelor degree = 3, junior college degree = 4, high school and below. Team size is the number of individual members in a team. For team development stage, forming stage = 1, norming stage = 2, maturing stage = 3, declining stage = 4. * $p < 0.05$, ** $p < 0.01$.*

to determine whether significant between-group differences exist in psychological safety and WWB at the individual level. The results showed that the between-group variance of psychological safety (τ_{00}) was 0.14, within-group variance (σ^2) was 0.27, $\chi^2(70) = 194.56$, and $p < 0.001$, indicating that 34.1% of the variance in psychological safety was at team level. Moreover, the between-group variance of WWB (τ_{00}) was 0.13, within-group variance (σ^2) was 0.30, $\chi^2(70) = 160$, and $p < 0.001$, meaning that 30.2% of the variance in WWB was at team level.

Then, we tested the main effect, namely, Hypothesis 1. Based on the null model, we added control variables (i.e., gender, age, education of employees, team size, and team development stage) and humble leadership, as shown in Model 3, **Table 3**. The results showed that humble leadership was positively related to WWB ($\gamma = 0.71$, $p < 0.001$). Thus, Hypothesis 1 was supported.

We tested Hypothesis 2 according to the following procedure suggested by Baron and Kenny (1986): (1) the independent variable (HL) was related to dependent variable (WWB), as supported by Hypothesis 1; (2) the independent variable (HL) was related to mediator (PS) (Model1, $\gamma = 0.42$, $p < 0.01$); (3) the mediator (PS) was related to the dependent variable (WWB) (Model4, $\gamma = 0.40$, $p < 0.001$); and (4) the effect of independent variable (HL) must be reduced or disappeared after controlling the mediator (PS). As shown in Model 5, **Table 3**, the significant

TABLE 1 | CFA results of study variables.

| Models | χ^2 | df | $\Delta\chi^2$ | CFI | TLI | RMSEA |
|---------------------------------------|----------|----|----------------|------|------|-------|
| Four-factor model: HL, EMC, PS, WWB | 29.89 | 21 | - | 0.99 | 0.98 | 0.04 |
| Three-factor model: HL + EMC, PS, WWB | 106.39 | 24 | 76.5** | 0.88 | 0.81 | 0.13 |
| Two-factor model: HL + EMC + PS, WWB | 162.37 | 26 | 132.48** | 0.79 | 0.71 | 0.15 |
| One-factor model: HL + EMC + PS + WWB | 175.54 | 27 | 147.65** | 0.78 | 0.70 | 0.16 |

** $p < 0.01$. HL, humble leadership; EMC, error management climate; PS, psychological safety; WWB, work well-being; "+" represents the combination of factors; CFI, comparative fit index; TLI, Tucker-Lewis index; RMSEA, Root Mean Square Error of Approximation; df, degree of freedom; and $\Delta\chi^2$, Chi-square differences.

TABLE 3 | HLM results for hypothesis testing.

| Variable | PS | | | WWB | | | | | |
|------------------------------------|------------|---------|----------|------------|---------|---------|---------|---------|---------|
| | Null Model | Model 1 | Model 2 | Null Model | Model 3 | Model 4 | Model 5 | Model 6 | Model 7 |
| Intercept | 3.47*** | 3.69*** | 3.77*** | 3.88*** | 3.67*** | 3.03*** | 3.87*** | 3.63*** | 3.85*** |
| Individual-level | | | | | | | | | |
| Gender | | 0.05 | 0.04 | | -0.06 | -0.06 | -0.07 | -0.07 | -0.07 |
| Age | | 0 | 0 | | 0.01 | 0.02* | 0.01 | 0 | 0 |
| Education | | 0.05 | 0.02 | | 0 | 0.01 | -0.04 | -0.01 | -0.03 |
| PS | | | | | | 0.40*** | 0.39*** | | |
| Team-level | | | | | | | | | |
| Team size | | -0.20* | -0.18*** | | -0.03 | 0.03 | -0.03 | -0.01 | -0.03 |
| Team development stage | | 0.03 | 0.05 | | 0.09 | 0.11 | 0.10 | 0.12 | 0.11† |
| HL | | 0.42** | 0.07 | | 0.71*** | | 0.69*** | | 0.39** |
| EMC | | | 0.91*** | | | | | 1.10*** | 0.77*** |
| HL*EMC | | | 0.62* | | | | | | |
| Variance decomposition | | | | | | | | | |
| Within-group variance σ^2 | 0.26 | 0.27 | 0.27 | 0.30 | 0.29 | 0.25 | 0.24 | 0.29 | 0.29 |
| Between-group variance τ_{00} | 0.14*** | 0.10*** | 0.05** | 0.13*** | 0.03† | 0.12*** | 0.04** | 0.02 | 0 |

The regression coefficients are all non-standardized coefficients under the robust standard errors. † $p < 0.1$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. HL, humble leadership; EMC, error management climate; PS, psychological safety; and WWB, work well-being. HL*EMC denotes the interaction item for HL and EMC.

coefficient of humble leadership’s influence on WWB decreased from 0.71 (see Model 3) to 0.69, indicating that psychological safety played a partial mediating role on the relationship between humble leadership and WWB. Thus, Hypothesis 2 was supported.

Likewise, we test Hypothesis 3 by adopting the above procedure: (1) the independent variable (HL) was related to dependent variable (WWB), as supported by Hypothesis 1; (2) the independent variable (HL) was related to mediator (EMC) ($\gamma = 0.66, p < 0.01$); (3) the mediator (EMC) was related to the dependent variable (WWB) (Model6, $\gamma = 1.10, p < 0.001$); and (4) the effect of independent (HL) must be reduced or disappeared after controlling the mediator (EMC). As shown in Model 7, Table 3, the significant coefficient of humble leadership’s influence on WWB was decreased from 0.71 (see Model 3) to 0.39, indicating that EMC played a partial mediating role on the relationship between humble leadership and WWB. Thus, Hypothesis 3 was supported.

We examined Hypothesis 4 which states that EMC moderated the relationship between humble leadership and psychological safety. As shown in Model 2, Table 3, the interaction terms of humble leadership and EMC were significant and positive ($\gamma = 0.62, p < 0.05$). According to Aiken and West’s (1991) approach, we have plotted the relationship between humble leadership and psychological safety under the mean plus one standard deviation ($M + SD$) and minus one standard deviation ($M - SD$) of EMC to further clarify the moderating effect of team-level EMC, as shown in Figure 2. The interaction plot exhibited that the relationship between humble leadership and psychological safety was stronger (simple slope = 0.69, $t = 6.58$) when EMC was high, whereas the relationship between humble leadership and psychological safety was lower when EMC was low (simple slope = -0.55, $t = -5.244$), the slope difference is significant (Δ slope = 1.24, $p < 0.05$). Therefore, Hypothesis 4 was supported.

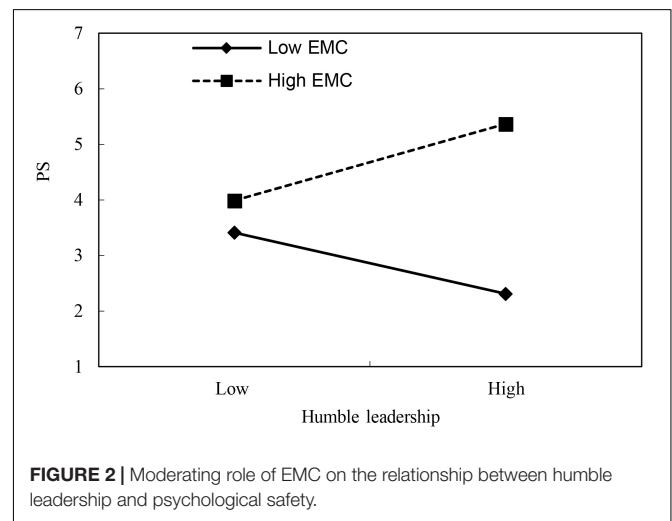


FIGURE 2 | Moderating role of EMC on the relationship between humble leadership and psychological safety.

Finally, we further tested Hypothesis 5 that EMC moderated the indirect effect of humble leadership on WWB through psychological safety by using Mplus7.0 and R4.0.2. As shown in Table 4, the results showed that when EMC was high, the indirect effect of psychological safety between humble leadership and WWB was 0.145 (95%LLCI = -0.269,

TABLE 4 | Moderated mediation testing.

| Dependent | EMC | Effect | SE | Low 95%CI | High 95%CI |
|-----------|------------|--------|-------|-----------|------------|
| WWB | High | 0.145 | 0.055 | -0.269 | -0.047 |
| | Low | 0.056 | 0.047 | -0.028 | 0.157 |
| | Difference | 0.088 | 0.050 | -0.001 | 0.199 |

Bootstrapped results are based on 20,000 samples.

ULCI = -0.047), the confidence intervals did not include 0; when EMC is low, the indirect effect of psychological safety was 0.056 (95%LLCI = -0.028 , ULCI = 0.157), the confidence intervals included 0, and between-group difference was 0.088 (95%LLCI = -0.001 , ULCI = 0.199), the confidence intervals included 0, it indicated that the moderated mediation did not exist, that is, the indirect effect of humble leadership on WWB was not moderated by EMC. Therefore, Hypothesis 5 was not supported.

DISCUSSION

Based on social information processing theory and related literature, we investigated the cross-level impact of humble leadership on WWB, especially the role of psychological safety and EMC. Using a sample composed of Chinese employees, we tested our hypotheses. The results showed that team-level humble leadership was positively related to WWB, psychological safety and EMC mediated the relationship between humble leadership and WWB, and EMC moderated the relationship between humble leadership and psychological safety, but EMC did not moderate the indirect effect of psychological safety between humble leadership and WWB.

Theoretical and Practical Implications

Our study has some theoretical contributions. First, our findings suggest that team-level humble leadership has a significantly positive relationship with WWB. As mentioned above, past research has linked humble leadership to various positive outcomes (Lin et al., 2014; Chughtai et al., 2015). However, to our knowledge, existing study has rarely explored the relationship between team-level humble leadership and WWB, especially in the Chinese context. Therefore, we explore the cross-level effects of humble leadership on WWB, which extend the previous findings (e.g., Owens et al., 2013; Nielsen and Marrone, 2018) on the relationship between humble leadership and employees' attitudes, emotions, and behaviors, such as job satisfaction, job engagement, trust in the leader, provide evidence for the positive effect of team humble leadership on employee's WWB in China, and further enrich the knowledge about the influence of team-level context (i.e., humble leadership) on WWB.

Second, by verifying the mediating effect of EMC and psychological safety in the linkage between humble leadership and WWB, this study can capture a more complete picture of how humble leadership influences WWB and contribute to understanding the effectiveness of humble leadership through different mechanisms. Although previous research has made much effort on clarifying the mechanisms underlying the relationship between humble leadership and team outcomes or individual outcomes through SIP theory (e.g., Rego et al., 2017; Hu et al., 2018; Zhu et al., 2019; Zhong et al., 2020), little is known about the multilevel processes between humble leadership and employees' WWB. Following recent research, we believe that SIP theory can also provide a key to opening

the "black box" of mechanism between humble leadership and WWB. Compared with other theories, SIP theory (Salancik and Pfeffer, 1978) not only unveils the mediating role of work setting, for example, social information helps individuals and teams to understand their work environment, which in turn, influences their attitudes and behaviors, but also emphasizes people's interpretation of social information is based on certain contextual characteristics. Based on SIP theory, humble leadership as a social information may send some signals to employees or their team and further influence their positive perceptions about work or work environment, which, in turn, have an impact on WWB. Thus, we have proposed and tested that psychological safety and EMC both act as the mediators between above variables. Our results are not only consistent with the cross-level theoretical model of Walumbwa et al. (2010) proposed that "leadership—team climates/individual perceptions—employee outcomes," but also extend the application of social information processing theory in humble leadership and WWB research field. These findings also respond to a call for more research exploring the mediating mechanisms between humble leadership and WWB (Zhong et al., 2020).

Third, we demonstrated the moderating role of EMC between humble leadership and psychological safety. As mentioned above, EMC also acted as a mediator between humble leadership and WWB. It may cause a confusing sense of the role of EMC. However, the fact that previous research has showed that team-level process variables can both act as mediator and moderator between team-level independent variables and individual-level dependent variables (Walumbwa et al., 2010). For example, Hofmann et al. (2003) argued that the specific climate within a team served to emphasize the expectations for members when they responded to leaders' affects. Liao and Chuang (2007) also pointed out that service climate as a situational enhancer of leadership effects. Our results suggested that humble leadership as a social information fosters positive climate is more likely to strengthen the relationship between humble leadership and psychological safety. For one thing, the findings are consistent with the emphasis of social information processing theory that "people's interpretation of social information is based on a certain social context" (Salancik and Pfeffer, 1978); for another thing, they are an important extension of the views of Hofmann et al. (2003) and Liao and Chuang (2007).

Finally, our results did not support that EMC moderates the indirect effect of psychological safety between humble leadership and WWB. A plausible explanation is that EMC affecting the mediating role of psychological safety between humble leadership and WWB is constrained by other situational factors, such as leader-member exchange differentiation (Henderson et al., 2009), which refers to the exchange relationship quality difference between team leaders and different members. Hooper and Martin (2008) showed that LMX differentiation leads to relational team conflict, which in turn, influences employees' job satisfaction and well-being negatively. As a result, it may statistically offset the positive effect of EMC on WWB.

The present study also has important implications for managerial practices. First, considering the positive role of humble leadership, organizations should focus on cultivating and shaping the humble behaviors of team leaders. For example, such actions can be initiated by encouraging team leaders to admit their own shortcomings and limitations, appreciate the advantages of others, and learn modestly. Second, team leaders should pay much attention to the psychological safety of employees and create a good EMC. Leaders should show as much humility as possible in their work, which in turn, reduces employees' perception of interpersonal risk and improves the level of EMC. Finally, the team should devote to creating an inclusive climate for errors, mutual trust, and mutual assistance among members to provide favorable environmental support and inspire humble leaders further, which may enhance psychological safety of employees.

Limitations and Future Research Directions

This present study has three limitations as follows. First, although our research data was collected from a two-wave survey of Chinese employees, independent variable and mediator variable were both collected at the same time. Thus, the causal conclusion could not be inferred confidently. Additionally, 2 months is a short period and dramatic changes in mean WWB are unlikely during such a short period, so a long-time longitudinal research design is more appropriate to ascertain causal relationships. For example, we can collect the data on humble leadership and EMC from supervisors' leaders at time 1 and psychological safety and WWB from employees at time 2 and time 3, respectively, every time interval may be at least 6 months. Furthermore, our data from different types of industry and firm, although the differences among different industries or firms are not very significant by using ANOVA, other industry or firm level variables as control variables deserve to be explored in future research in order to strengthen the rigor of the study.

Second, we collected data from employees by self-reported method. Hence, our research results may be influenced by CMV. Prior extensive studies have used the self-reported approach to measure leadership and employees' well-being (e.g., Liu et al., 2009; Chughtai et al., 2015). To reduce CMV, according to the suggestions of Podsakoff et al. (2003) and refer to some similar studies (e.g., Atwater and Carmeli, 2009), we collected data at two time points. The latent variable approach has also indicated that the method variance is not a major problem in the current study. Indeed, some research has suggested that whether to apply a self-reported method depends on the nature of the variables (Rahimnia and Sharifrad, 2015). Some variables which represent internal psychological and physiological states, such as psychological safety and WWB. The most appropriate approach to measure these variables is directly self-report from the individuals who experience them (Rahimnia and Sharifrad, 2015). Additionally, the self-report design can

be very useful in providing a picture of how individuals feel about and view their work, and tell us about the intercorrelations among different perceptions and feelings (Spector, 1994). Nevertheless, to mitigate the negative impact of this problem, future research can gather data from different sources (Podsakoff et al., 2003). For example, humble leadership can be assessed by supervisors' leaders, EMC and psychological safety are reported by employees, and WWB could be rated by employees' coworkers or family members.

Third, SIP theory has good explanatory power for the mechanisms between leadership behavior and individual attitudes and behaviors (Salancik and Pfeffer, 1978). Our model is based on SIP theory, which helps to explain how and when humble leadership affects WWB. As mentioned above, although the linkage between humble leadership and WWB was not established by SIP theory, this theory has been used in previous humble leadership research (e.g., Liu et al., 2017; Hu et al., 2018). Thus, whether other theories, such as social exchange theory (Blau, 1964) or self-determination theory (SDT; Deci and Ryan, 1985), can provide a new insight and further construct the overall theoretical model need to be probed in future. Furthermore, although self-determination theory, which posits that three basic psychological needs are essential for well-being, may be a good framework for our study, we did not construct a theoretical model based on this theory, thus, future research can examine what best explains the relationship between humble leadership and WWB through different mediators by comparing SIP theory and SDT.

Fourth, we explore the moderating role of EMC between humble leadership and psychological safety, and the moderated mediation effect of EMC on psychological safety. However, we don't examine the direct relationship of EMC and psychological safety in order to expand the theorizing toward the moderating role, although there is a positive relationship between them. Additionally, our results do not support that EMC moderates the indirect of psychological safety between humble leadership and WWB. Although we had tried to explain the reason that EMC may be impacted by other team context, such as leader-member exchange differentiation, further research should explore other contextual variables to improve our theoretical model.

Finally, we construct a cross-level model based on current theory limitations to link humble leadership and WWB through EMC and psychological safety. However, the correlation between humble leadership and EMC is a little high (0.66), and the standard deviation of EMC is too small (0.30), so the current data may have limited variances in the variable. To deal with these issues, we adopt multi-level CFA analyses on all variables according to Dyer and his partners' procedure (2005), the results show that overall, the fit indexes of multi-level model are better than single-level model. But the fit index of between model is poor, it may be related to the small sample size at team-level or model complexity, thus, future research needs to expand the sample size of team-level and reduce the complexity of the model.

DATA AVAILABILITY STATEMENT

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

ETHICS STATEMENT

The studies involving human participants were reviewed and approved by the School of Business Administration at Shanxi University of Finance and Economics. The participants provided their written informed consent to participate in this study.

REFERENCES

- Aiken, L. S., and West, S. G. (1991). *Multiple Regression: Testing and Interpreting Interactions*. Newbury Park, CA: Sage.
- Akkermans, J., Brenninkmeijer, V., Blonk, R. W. B., and Koppes, L. L. J. (2009). Fresh and healthy? Well-being, health and performance of young employees with intermediate education. *Career Dev. Int.* 14, 671–699. doi: 10.1108/13620430911005717
- Ashford, S. J., and Tsui, A. S. (1991). Self-regulation for managerial effectiveness: the role of active feedback seeking. *Acad. Manag. J.* 34, 251–280. doi: 10.2307/256442
- Atwater, L., and Carmeli, A. (2009). Leader-member exchange, feelings of energy, and involvement in creative work. *Leadersh. Q.* 20, 264–275. doi: 10.1016/j.leaqua.2007.07.009
- Bandura, A. (1977). *Social Learning Theory*. Englewood Cliffs, NJ: Prentice-Hall.
- Baron, R. M., and Kenny, D. A. (1986). The moderator–mediator variable distinction in social psychological research: conceptual, strategic, and statistical considerations. *J. Pers. Soc. Psychol.* 51, 1173–1182. doi: 10.1037/0022-3514.51.6.1173
- Blau, P. (1964). *Exchange and Power in Social Life*. New York, NY: John Wiley.
- Bliese, P. D. (2000). “Within-group agreement, non-independence, and reliability: implications for data aggregation and analysis,” in *Multilevel Theory, Research, and Methods in Organizations: Foundations, Extensions, and New Directions*, eds K. J. Klein and S. W. J. Kozlowski (San Francisco, CA: Jossey-Bass).
- Brislin, R. W. (1970). Back-translation for cross-cultural research. *J. Cross Cult. Psychol.* 1, 185–216. doi: 10.1177/135910457000100301
- Carmeli, A., Brueller, D., and Dutton, J. E. (2008). Learning behaviours in the workplace: the role of high-quality interpersonal relationships and psychological safety. *Syst. Res. Behav. Sci.* 26, 81–98. doi: 10.1002/sres.932
- Carmeli, A., Reiter-Palmon, R., and Ziv, E. (2010). Inclusive leadership and employee involvement in creative tasks in the workplace: the mediating role of psychological safety. *Creat. Res. J.* 22, 250–260. doi: 10.1080/10400419.2010.504654
- Casey, T. W., and Krauss, A. D. (2013). The role of effective error management practices in increasing miners’ safety performance. *Saf. Sci.* 60, 131–141. doi: 10.1016/j.ssci.2013.07.001
- Chen, C., Liao, J., and Wen, P. (2014). Why does formal mentoring matter? The mediating role of psychological safety and the moderating role of power distance orientation in the Chinese context. *Int. J. Hum. Resour. Manag.* 25, 1112–1130. doi: 10.1080/09585192.2013.816861
- Chen, G., and Bliese, P. D. (2002). The role of different levels of leadership in predicting self- and collective efficacy: evidence for discontinuity. *J. Appl. Psychol.* 97, 549–556. doi: 10.1037/0021-9010.87.3.549
- Chen, Q., Wen, Z., Kong, Y., Niu, J., and Hau, K.-T. (2017). Influence of leaders’ psychological capital on their followers: multilevel mediation effect of organizational identification. *Front. Psychol.* 8:1776. doi: 10.3389/fpsyg.2017.01776

AUTHOR CONTRIBUTIONS

ZZ designed the research and wrote the manuscript. PS collected and analyzed the data, and they amended the manuscript. Both authors contributed to the article and approved the submitted version.

FUNDING

This work was funded by Project of Humanities and Social Sciences of Ministry of Education in China (17YJC630222) and the 13th Five-Year Education Scientific Planning Project in Shanxi Province (GH-17038).

- Choi, S. B., Tran, T. B. H., and Kang, S. W. (2017). Inclusive leadership and employee well-being: the mediating role of person-job fit. *J. Bus. Ethics* 18, 1–25. doi: 10.1007/s10902-016-9801-6
- Chughtai, A., Byrne, M., and Flood, B. (2015). Linking ethical leadership to employee well-being: the role of trust in supervisor. *J. Bus. Ethics* 128, 653–663. doi: 10.1007/s10551-014-2126-7
- Cigularov, K. P., Chen, P. Y., and Rosecrance, J. (2010). The effects of error management climate and safety communication on safety: a multi-level study. *Accid. Anal. Prev.* 42, 1498–1506. doi: 10.1016/j.aap.2010.01.003
- Clark, A. E. (1997). Job satisfaction and gender: why are women so happy at work? *Labour Econ.* 4, 341–372. doi: 10.1016/S0927-5371(97)00010-9
- Deci, E. L., and Ryan, R. M. (1985). *Intrinsic Motivation and Self-Determination in Human Behavior*. New York, NY: Plenum.
- Di, F. A. (2017). The psychology of sustainability and sustainable development for well-being in organizations. *Front. Psychol.* 8:1534. doi: 10.3389/fpsyg.2017.01534
- Diener, E. (1984). Subjective well-being. *Psychol. Bull.* 95, 542–575. doi: 10.1037/0033-2909.95.3.542
- Dirks, K. T., and Ferrin, D. L. (2001). The role of trust in organizational settings. *Organ. Sci.* 12, 450–467. doi: 10.1287/orsc.12.4.450.10640
- Dyer, N. G., Hanges, P. J., and Hall, R. J. (2005). Applying multilevel confirmatory factor analysis techniques to the study of leadership. *Leadersh. Q.* 16, 149–167. doi: 10.1016/j.leaqua.2004.09.009
- Edmondson, A. C. (1999). Psychological safety and learning behavior in work teams. *Admin. Sci. Q.* 44, 350–383. doi: 10.2307/2666999
- Edmondson, A. C. (2004). “Psychological safety, trust, and learning in organizations: a group-level lens,” in *Trust and Distrust in Organizations: Dilemmas and Approaches*, eds K. S. Cook and R. M. Kramer (New York, NY: Russell Sage Foundation).
- Fisher, C. D. (2010). Happiness at work. *Int. J. Manag. Rev.* 12, 384–412. doi: 10.1111/j.1468-2370.2009.00270.x
- Fritz, C., Lam, C. F., and Spreitzer, G. M. (2011). It’s the little things that matter: an examination of knowledge workers’ energy management. *Acad. Manag. Exec.* 25, 28–39. doi: 10.5465/AMP.2011.63886528
- Fu, J., Long, Y., He, Q., and Liu, Y. (2020). Can ethical leadership improve employees’ well-being at work? Another side of ethical leadership based on organizational citizenship anxiety. *Front. Psychol.* 11:1478. doi: 10.3389/fpsyg.2020.01478
- Guchait, P., Zhao, X., Madera, J., Nan, H., and Okumus, F. (2018). Can error management culture increase work engagement in hotels? The moderating role of gender. *Serv. Bus.* 12, 1–22. doi: 10.1007/s11628-018-0374-9
- He, G. H., An, R., and Hewlin, P. F. (2019). Paternalistic leadership and employee well-being: a moderated mediation model. *Chin. Manag. Stud.* 13, 645–663. doi: 10.1108/cms-10-2018-0724
- Heffernan, M., and Dundon, T. (2016). Cross-level effects of high-performance work systems (HPWS) and employee well-being: the mediating effect of organisational justice. *Hum. Resour. Manag. J.* 26, 211–231. doi: 10.1111/1748-5853.12095

- Henderson, D. J., Liden, R. C., Glibkowski, B. C., and Chaudhry, A. (2009). LMX differentiation: a multilevel review and examination of its antecedents and outcomes. *Leadersh. Q.* 20, 517–534. doi: 10.1016/j.leaqua.2009.04.003
- Hobfoll, S. E. (1989). Conservation of resources—a new attempt at conceptualizing stress. *Am. Psychol.* 44, 513–524. doi: 10.1037/0003-066X.44.3.513
- Hofmann, D. A., and Gavin, M. B. (1998). Centering decisions in hierarchical linear models: implications for research in organizations. *J. Manag.* 24, 623–641. doi: 10.1177/014920639802400504
- Hofmann, D. A., Morgeson, F. P., and Gerras, S. J. (2003). Climate as a moderator of the relationship between leader-member exchange and content specific citizenship: safety climate as an exemplar. *J. Appl. Psychol.* 88, 170–178. doi: 10.1037/0021-9010.88.1.170
- Honkaniemi, L., Lehtonen, M. H., and Hasu, M. (2015). Well-being and innovativeness: motivational trigger points for mutual enhancement. *Eur. J. Train. Dev.* 39, 393–408. doi: 10.1108/EJTD-11-2014-0078
- Hooper, D. T., and Martin, R. (2008). Beyond personal leader-member exchange (LMX) quality: the effects of perceived LMX variability on employee reactions. *Leadersh. Q.* 19, 20–30. doi: 10.1016/j.leaqua.2007.12.002
- Hu, J., Erdogan, B., Jiang, K. F., Bauer, T. N., and Liu, S. B. (2018). Leader humility and team creativity: the role of team information sharing, psychological safety, and power distance. *J. Appl. Psychol.* 103, 313–323. doi: 10.1037/apl0000277
- James, L. R. (1982). Aggregation bias in estimates of perceptual agreement. *J. Appl. Psychol.* 67, 219–229. doi: 10.1037/0021-9010.67.2.219
- Jeung, C. W., and Yoon, H. J. (2016). Leader humility and psychological empowerment: investigating contingency. *J. Manage. Psychol.* 31, 1122–1136. doi: 10.1108/JMP-07-2015-0270
- Kahn, W. A. (1990). Psychological conditions of personal engagement and disengagement at work. *Acad. Manag. J.* 33, 692–724. doi: 10.5465/256287
- Karatepe, O. M. (2012). The effects of coworker and perceived organizational support on hotel employee outcomes: the moderating role of job embeddedness. *J. Hosp. Tour. Res.* 36, 495–516. doi: 10.1177/1096348011413592
- Kayla, N., and Walters, D. L. D. (2016). Humble leadership: implications for psychological safety and follower engagement. *J. Leadersh. Stud.* 10, 7–18. doi: 10.1002/jls.21434
- Keith, N., and Frese, M. (2005). Self-regulation in error management training: emotion control and metacognition as mediators of performance effects. *J. Appl. Psychol.* 90, 677–691. doi: 10.1037/0021-9010.90.4.677
- Kirk-Brown, A., and Van Dijk, P. (2016). An examination of the role of psychological safety in the relationship between job resources, affective commitment and turnover intentions of Australian employees with chronic illness. *Int. J. Hum. Resour. Manag.* 27, 1626–1641. doi: 10.1080/09585192.2015.1053964
- Kowalski, T. H. P., and Loretto, W. (2017). Well-being and HRM in the changing workplace. *Int. J. Hum. Resour. Manag.* 28, 2229–2255. doi: 10.1080/09585192.2017.1345205
- Ladkin, D., and Taylor, S. S. (2010). Enacting the ‘true self’: towards a theory of embodied authentic leadership. *Leadersh. Q.* 21, 64–74. doi: 10.1016/j.leaqua.2009.10.005
- Liao, H., and Chuang, A. (2007). Transforming service employees and climate: a multilevel, multisource examination of transformational leadership in building long-term service relationships. *J. Appl. Psychol.* 92, 1006–1019. doi: 10.1037/0021-9010.92.4.1006
- Liden, R. C., Sparrowe, R. T., and Wayne, S. J. (1997). “Leader-member exchange theory: the past and potential for the future,” in *Research in Personnel and Human Resources Management*, ed. G. R. Ferris (Amsterdam: Elsevier Science).
- Lin, Y. C., Yu, C., and Yi, C.-C. (2014). The effects of positive affect, person-job fit, and well-being on job performance. *Soc. Behav. Pers. Int. J.* 42, 1537–1547. doi: 10.2224/sbp.2014.42.9.1537
- Liu, J., Kwan, H. K., Fu, P. P., and Mao, Y. (2013). Ethical leadership and job performance in china: the roles of workplace friendships and traditionality. *J. Occup. Organ. Psychol.* 86, 564–584.
- Liu, J., Siu, O. L., and Shi, K. (2009). Transformational leadership and employee well-being: the mediating role of trust in the leader and self-efficacy. *Appl. Psychol.* 59, 454–479. doi: 10.1111/j.1464-0597.2009.00407.x
- Liu, W., Mao, J., and Chen, X. (2017). Leader humility and team innovation: investigating the substituting role of task interdependence and the mediating role of team voice climate. *Front. Psychol.* 8:1115. doi: 10.3389/fpsyg.2017.01115
- Lu, L., Kao, S. F., Siu, O. L., and Lu, C. Q. (2011). Work stress, Chinese work values, and work well-being in the greater China. *J. Soc. Psychol.* 151, 767–783. doi: 10.1080/00224545.2010.538760
- Matsunaga, M. (2008). Item parceling in structural equation modeling: a primer. *Commun. Methods Meas.* 2, 260–293. doi: 10.1080/19312450802458935
- Maurer, T. J., Hartnell, C. A., and Lippstreu, M. (2017). A model of leadership motivations, error management culture, leadership capacity, and career success. *J. Occup. Organ. Psychol.* 90, 481–507. doi: 10.1111/joop.12181
- Mearns, K. J., and Flin, R. (1999). Assessing the state of organizational safety—culture or climate? *Curr. Psychol.* 18, 5–17. doi: 10.1007/s12144-999-1013-3
- Miao, R., and Cao, Y. (2019). High-performance work system, work well-being, and employee creativity: cross-level moderating role of transformational leadership. *Int. J. Environ. Res. Public Health* 16:1640. doi: 10.3390/ijerph16091640
- Moliner, C., Martínez-Tur, V., Ramos, J., Peiró, J. M., and Cropanzano, R. (2008). Organizational justice and extrarole customer service: the mediating role of well-being at work. *Eur. J. Work Organ. Psychol.* 17, 327–348. doi: 10.1080/13594320701743616
- Morris, J. A. (2005). Bringing humility to leadership: antecedents and consequences of leader humility. *Hum. Relat.* 58, 1323–1350. doi: 10.1177/0018726705059929
- Mullen, B., Symons, C., Hu, L., and Salas, E. (1989). Group size, leadership behavior, and subordinate satisfaction. *J. Gen. Psychol.* 116, 155–169. doi: 10.1080/00221309.1989.9711120
- Naumann, S. E., and Bennett, N. (2000). A case for procedural justice climate: development and test of a multilevel model. *Acad. Manag. J.* 45, 881–889. doi: 10.2307/1556416
- Nembhard, I. M., and Edmondson, A. C. (2006). Making it safe: the effects of leader inclusiveness and professional status on psychological safety and improvement efforts in health care teams. *J. Organ. Behav.* 27, 941–966. doi: 10.1002/job.413
- Newman, A., Donohue, R., and Eva, N. (2017). Psychological safety: a systematic review of the literature. *Hum. Resour. Manag. Rev.* 27, 521–535. doi: 10.1016/j.hrmr.2017.01.001
- Nielsen, R., and Marrone, J. A. (2018). Humility: our current understanding of the construct and its role in organizations. *Int. J. Manag. Rev.* 20, 805–824. doi: 10.1111/ijmr.12160
- Nielsen, R., Marrone, J. A., and Slay, H. S. (2010). A new look at humility: exploring the humility concept and its role in socialized charismatic leadership. *J. Leadersh. Org. Stud.* 17, 33–43. doi: 10.1177/1548051809350892
- Nixon, A. E., Lanz, J. J., Manapragada, A., Bruk-Lee, V., Schantz, A., and Rodriguez, J. F. (2015). Nurse safety: how is safety climate related to affect and attitude? *Work Stress* 29, 401–419. doi: 10.1080/02678373.2015.1076536
- Owens, B. P., and Hekman, D. R. (2012). Modeling how to grow: an inductive examination of humble leader behaviors, contingencies, and outcomes. *Acad. Manag. J.* 55, 787–818. doi: 10.5465/amj.2010.0441
- Owens, B. P., Johnson, M. D., and Mitchell, T. R. (2013). Expressed humility in organizations: implications for performance, teams, and leadership. *Organ. Sci.* 24, 1517–1538. doi: 10.1287/orsc.1120.0795
- Paulin, D., and Griffin, B. (2016). The relationships between incivility, team climate for incivility and job-related employee well-being: a multilevel analysis. *Work Stress* 30, 1–20. doi: 10.1080/02678373.2016.1173124
- Peters, A. S., Rowatt, W. C., and Johnson, M. K. (2011). Associations between dispositional humility and social relationship quality. *Psychology* 2, 155–161. doi: 10.4236/psych.2011.23025
- Piszczek, M. M., and Pimputkar, A. S. (2020). Flexible schedules across working lives: age-specific effects on well-being and work. *J. Appl. Psychol.* (forthcoming). doi: 10.1037/apl0000844
- Podsakoff, P. M., MacKenzie, S. B., Lee, J.-Y., and Podsakoff, N. P. (2003). Common method biases in behavioral research: a critical review of the literature and recommended remedies. *J. Appl. Psychol.* 88, 879–903. doi: 10.1037/0021-9010.88.5.879

- Rahimnia, F., and Sharifirad, M. S. (2015). Authentic leadership and employee well-being: the mediating role of attachment insecurity. *J. Bus. Ethics* 132, 363–377. doi: 10.1007/s10551-014-2318-1
- Randel, A. E., Galvin, B. M., Shore, L. M., Ehrhart, K. H., Chung, B. G., Dean, M. A., et al. (2017). Inclusive leadership: realizing positive outcomes through belongingness and being valued for uniqueness. *Hum. Resour. Manag. Rev.* 28, 190–203. doi: 10.1016/j.hrmr.2017.07.002
- Rego, A., Owens, B., Leal, S., Melo, A. I., Cunha, M. P. E., Gonçalves, L., et al. (2017). How leader humility helps teams to be humbler, psychologically stronger, and more effective: a moderated mediation model. *Leadersh. Q.* 28, 639–658. doi: 10.1016/j.leaqua.2017.02.002
- Rousseau, D. (1985). "Issues of level in organizational research: multilevel and cross-level perspectives," in *Research in Organizational Behavior*, Vol. 7, eds L. L. Cummings and B. M. Staw (Greenwich, CT: JAI Press), 1–37. doi: 10.1108/s1475-9144(2009)0000008018
- Rupert, J., Homan, A. C., Jehn, K. A., and Blomme, R. J. (2019). Diversity composition and team learning: the moderating role of error culture. *Group Decis. Negot.* 28, 695–722. doi: 10.1007/s10726-019-09626-5
- Ryan, R. M., and Deci, E. L. (2001). On happiness and human potentials: a review of research on hedonic and eudaimonic well-being. *Annu. Rev. Psychol.* 52, 141–166. doi: 10.1146/annurev.psych.52.1.141
- Ryff, C. D., and Singer, B. H. (2008). Know thyself and become what you are: a eudaimonic approach to psychological well-being. *J. Happ. Stud.* 9, 13–39. doi: 10.1007/s10902-006-9019-0
- Salancik, G. R., and Pfeffer, J. (1978). A social information processing approach to job attitudes and task design. *Adm. Sci. Q.* 23, 224–253. doi: 10.2307/2392563
- Schein, E. H. (1985). *Organizational Culture and Leadership*, 1st Edn. San Francisco, CA: Jossey-Bass.
- Sharifirad, M. S. (2013). Transformational leadership, innovative work behavior, and employee well-being. *Glob. Bus. Perspect.* 1, 198–225. doi: 10.1007/s40196-013-0019-2
- Siu, O. L., Cheung, F., and Lui, S. (2015). Linking positive emotions to work well-being and turnover intention among Hong Kong police officers: the role of psychological capital. *J. Happ. Stud.* 16, 367–380. doi: 10.1007/s10902-014-9513-8
- Siu, O. L., Spector, P. E., Cooper, C. L., and Lu, C.-Q. (2005). Work stress, self-efficacy, Chinese work values, and work well-being in Hong Kong and Beijing. *Int. J. Stress Manag.* 12, 274–288. doi: 10.1037/1072-5245.12.3.274
- Sparr, J. L., and Sonnentag, S. (2008). Fairness perceptions of supervisor feedback, LMX, and employee well-being at work. *Eur. J. Work Organ. Psychol.* 17, 198–225. doi: 10.1080/13594320701743590
- Spector, P. E. (1994). Using self-report questionnaires in OB research: a comment on the use of a controversial method. *J. Organ. Behav.* 15, 385–392. doi: 10.1002/job.4030150503
- Tsui, A. S., Ashford, S. J., and Xin, C. K. R. (1995). Dealing with discrepant expectations: response strategies and managerial effectiveness. *Acad. Manag. J.* 38, 1515–1543. doi: 10.2307/256842
- Tuckman, B. W. (1965). Developmental sequence in small groups. *Psychol. Bull.* 63, 384–399. doi: 10.1037/h0022100
- Van Dyck, C., Frese, M., Baer, M., and Sonnentag, S. (2005). Organizational error management culture and its impact on performance: a two-study replication. *J. Appl. Psychol.* 90, 1228–1240. doi: 10.1037/0021-9010.90.6.1228
- Walumbwa, F. O., Hartnell, C. A., and Oke, A. (2010). Servant leadership, procedural justice climate, service climate, employee attitudes, and organizational citizenship behavior: a cross-level investigation. *J. Appl. Psychol.* 95, 517–529. doi: 10.1037/a0018867
- Walumbwa, F. O., Wu, C., and Orwa, B. (2008). Contingent reward transactional leadership, work attitudes, and organizational citizenship behavior: the role of procedural justice climate perceptions and strength. *Leadersh. Q.* 19, 251–265. doi: 10.1016/j.leaqua.2008.03.004
- Walters, K. N., and Diab, D. L. (2016). Humble leadership: implications for psychological safety and follower engagement. *J. Leadersh. Stud.* 10, 7–18. doi: 10.1002/jls.21434
- Wang, L., Owens, B. P., Li, J., and Shi, L. (2018). Exploring the affective impact, boundary conditions, and antecedents of leader humility. *J. Appl. Psychol.* 103, 1019–1038. doi: 10.1037/apl0000314
- Wang, X., Guchait, P., Madera, J. M., and Paşamehmetoğlu, A. (2018). Is "Do it right the first time" necessarily right?: the importance of error management culture in the hospitality industry. *Int. J. Contem. Hosp. Manag.* 30, 1398–1418. doi: 10.1108/IJCHM-01-2017-0038
- Warr, P. (1987). *Work, Unemployment, and Mental Health*. Oxford: Clarendon Press.
- Williams, L. J., Cote, J. A., and Buckley, M. R. (1989). Lack of method variance in self-reported affect and perceptions at work: reality or artifact? *J. Appl. Psychol.* 74, 462–468. doi: 10.1037/0021-9010.74.3.462
- Zhang, M., Zhu, C. J., Dowling, P. J., and Bartram, T. (2013). Exploring the effects of high-performance work systems (HPWS) on the work-related well-being of Chinese hospital employees. *Int. J. Hum. Resour. Manag.* 24, 3196–3212. doi: 10.1080/09585192.2013.775026
- Zhang, W., and Liu, W. (2019). Leader humility and taking charge: the role of OBSE and leader prototypicality. *Front. Psychol.* 10:2515. doi: 10.3389/fpsyg.2019.02515
- Zhang, Z. X. (2010). The contextualization and multilevel issues in research of organizational psychology. *Acta Psychol. Sin.* 42, 10–21. doi: 10.3724/SP.J.1041.2010.00010
- Zheng, X., Zhu, W., Zhao, H., and Zhang, C. (2015). Employee well-being in organizations: theoretical model, scale development, and cross-cultural validation. *J. Organ. Behav.* 36, 621–644. doi: 10.1002/job.1990
- Zhong, J., Zhang, L., Li, P., and Zhang, D. Z. (2020). Can leader humility enhance employee wellbeing? The mediating role of employee humility. *Leadersh. Organ. Dev. J.* 41, 19–36. doi: 10.1108/LODJ-03-2019-0124
- Zhu, Y., Zhang, S., and Shen, Y. (2019). Humble leadership and employee resilience: exploring the mediating mechanism of work-related promotion focus and perceived insider identity. *Front. Psychol.* 10:673. doi: 10.3389/fpsyg.2019.00673

Conflict of Interest: The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

Copyright © 2020 Zhang and Song. This is an open-access article distributed under the terms of the Creative Commons Attribution License (CC BY). The use, distribution or reproduction in other forums is permitted, provided the original author(s) and the copyright owner(s) are credited and that the original publication in this journal is cited, in accordance with accepted academic practice. No use, distribution or reproduction is permitted which does not comply with these terms.