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Organizational justice perception and employees' social loafing in the context of the COVID-19 epidemic: the mediating role of organizational commitment

Chong Chen^{1,2}, Beibei Wang^{3✉}, Hongfei An¹ & Min Luo¹

As the cornerstone of enterprises, employees have played a pivotal role in navigating the challenges posed by the COVID-19 pandemic and ensuring the survival and growth of businesses. The global wave of unemployment triggered by the pandemic has given rise to innovative work engagements, including remote work and employee sharing. This shift prompts employees to reconsider their relationship with the organization, the extent of their collaboration, and their commitment to sustaining the enterprise's viability and development. Amidst the diverse performance level of employees, the question arises: will they redouble their efforts to showcase their value or succumb to a state of inertia? Additionally, the outbreak of the COVID-19 epidemic has brought about adverse impacts, making enterprises think about how to inhibit employees' social loafing, stimulate their enthusiasm, and to rely on collective strength to overcome the crisis. During the pandemic, uncertainty of the work environment was elevated, and the factors influencing employees' social loafing, perception of organizational justice, and organizational commitment became more significant. Based on the social exchange theory, this paper conducts research on how employees' perception of organizational justice level weakens their social loafing and incorporates organizational commitment into the research framework in order to explore new presentations of relationships between these variables in the context of the epidemic. Through the data analysis of 276 questionnaires, the study found that: (1) the organizational justice has a negative impact on the social loafing of employees; (2) the organizational commitment plays a complete mediating role between the organizational justice and employees' social loafing.

¹School of Business Administration, Henan University of Economics and Law, Zhengzhou 450046, China. ²Henan Economy Research Center, Henan University of Economics and Law, Zhengzhou 450046, China. ³School of Economics and Management, Anyang University, Anyang 455000, China. ✉email: wangbei_huel@163.com

Introduction

The global outbreak of COVID-19 has left an indelible mark on people's lives, severely impeding socio-economic development and posing significant challenges to enterprises growth. The ability of businesses to navigate these challenges and ensure their long-term survival hinges largely on the effective allocation of resources. Among these, employees, as the driving force behind enterprise development, emerge as a crucial factor that cannot be overlooked. In this complex landscape, enterprises must address the issue of social loafing among employees to unlock their full potential and leverage collective strength in overcoming the crisis. The ongoing global unemployment trend during the pandemic has also influenced employees' perception of job security within their organizations. Additionally, the adoption of new work paradigms, such as remote work, tests employees' adaptability and cooperation capabilities.

These changes have a profound impact on employees' focus and commitment, presenting new challenges for enterprise human resource management. The central questions become: How can businesses effectively mobilize employees' enthusiasm and unlock their potential to maintain the high-performance level? Crucially, inhibiting social loafing emerges as a key objective for businesses. Research indicates that the root cause of social loafing lies in the breakdown of the interaction process during collective activities, primarily stemming from a loss of individual motivation (Niu and Xie, 2018). Consequently, the focus shifts to stimulating intrinsic motivation in individuals, with the perception of organizational justice playing a pivotal role in influencing employees' intrinsic motivation. Studies, such as that conducted by Sun (2020), reveal that organizational justice significantly impacts employees' attitude and behaviors. Moreover, organizational justice contribute to enhancing cognitive level and the quality of behavior, thereby improving the overall relationship between employees and organizations. It becomes evident that organizational justice is a powerful tool for boosting employees' work enthusiasm and curbing social loafing. This paper aims to delve into the study of how perception of organizational justice influences employees' social loafing, recognizing the critical role it plays in shaping employee behavior and fostering a conducive work environment.

The concept of social loafing, as revealed in prior studies, challenges our conventional belief that collective strength surpasses that sum of individual contributions. This phenomenon manifest as a decrease in effort and average contribution when engaging in convergent goal activities within a group setting, particularly as the group size expands (Wang and Zhu, 2006). To mitigate individual social loafing in group activities, it becomes imperative to bolster employees' internal motivation, fostering their potential and proactive engagement. This entails a continual effort to enhance their enthusiasm for participation, ensuring it either maintain or surpasses their existing level of effort and contributions in activities. Research indicates that inadequate mechanisms for fair individual performance evaluation and feedback (Williams, 1981), or a dearth of challenging work (Harkins and Petty, 1982), can lead to the loss of personal motivation (George, 1992), subsequently resulting in social loafing. Conversely, when individuals perceive organizational justice, including accurate evaluation of their efforts and contributions followed by corresponding rewards, their personal motivation remains intact, and social loafing is averted. Organizational justice thus emerges as a pivotal factor inhibiting employees' social loafing, exerting a significant negative impact on this behavior. However, it is crucial to note that relationship between organizational justice and social loafing is not solely direct.

According to the social exchange theory, a social contract is established between employees and enterprises. Employees join an enterprise to fulfill their own interests, while enterprises, in turn, depend on abilities of their employees to survive and achieve sustainable development amid intense market competition. Within this dynamic, employees' perception of fairness in the compensation and operational rules significantly influence their work attitude and behavior, subsequently shaping their organizational commitment to the enterprise. The manifestation of these attitudes and behaviors is evident in specific work-related tasks, impacting the diligence or laxity exhibited by employees, ultimately influencing the quality of their work and their contribution to the enterprise development.

Organizational commitment viewed as a psychological transmission mechanism, plays a crucial role in mediating the impact of organizational justice on employees' social loafing. Amid the COVID-19 context, the unpredictable behaviors such as layoffs in enterprises during the pandemic create psychological pressure stemming from a sense of instability among employees. This raises questions about whether employees will maintain a high motivation, redoubling their efforts or "put rotten" and "take a free ride" negatively? Organizational commitment becomes a key metric, serving as an indicator of employee engagement in these two distinct outcomes. Organizational commitment, defined as the emotional attachment of employees to the organization, signifies their recognition of organizational values and culture, as well as their willingness to invest in the organization. It represents a stable and firm psychological connection between employees and the enterprise. Therefore, this study aims to explore the mediating role of organizational commitment in the relationship between organizational justice and employees' social loafing.

Following the research paradigm of "cognition-attitude-behavior", this paper aims to delve into the impact mechanism of organizational justice on employees' social loafing, employing the lens social exchange theory. The theoretical exploration is committed to investigating the nexus between individuals' perception of fairness in current enterprise operation and evaluation mechanisms and their intrinsic motivation. The goal is to unravel the antecedents of employees' social loafing behavior and scrutinize the psychological roots of negative emotions and behavior. In terms of enterprise practice, from the perspective of human resources management, enterprises should create an institutional environment and cultural atmosphere that employees agree with and meet their interest demands, so as to reduce employees' negative psychological state such as insecurity in the normalized environment of the COVID-19 epidemic, and build a harmonious relationship between the enterprise and employees that can promote the sustainable development of enterprises.

Theoretical analysis and research assumptions

Organizational justice and employees' social loafing. The established organizational justice theory recognizes three dimensions: procedural justice, distribution justice, and interactive justice (Tian, 2014). Procedural justice centers on the fairness of adhering to procedures and rules in distribution, justice involves individuals' perception of the fairness of rewards, and interactive justice pertains to the quality of interpersonal interactions perceived by individuals (Masterson et al., 2000).

In group settings, individuals may harbor doubts and disbelief regarding their peer's commitment to fulfilling obligations, and the evaluation of individual contributions within the group may not always be equitable. In such instance, the psychological cognitive mechanism of fairness plays a pivotal role in influencing effort level (George, 1992). When organization members perceive unfair

treatment, emotional and behavioral reactions ensue, leading to diminished organizational commitment, heightened social loafing, and in extreme cases, resignation from the organization (Vaezi et al., 2017). This phenomenon is particularly pronounced in turbulent environments where employees' psychological security is compromised, presenting more opportunities to "free ride" as individuals seek inclined to conserve their resources.

Organizational justice, in essence, reflects an individual's subjective perception of an enterprise's fairness across decision-making, operation, evaluation, and incentive mechanisms. When employees perceive inequity in decision-making or evaluation processes triggers shift in their work attitude and intrinsic motivation. In cases where efforts and contributions are perceived as inaccurately evaluated, manifestation of slackness, laziness, and evaluated, and nonfeasance may arise, leading to instances of free-riding. Conversely, a fair evaluation mechanism within the enterprise where employees are duly rewarded for their contributions, instills initiative in their work. This proactive approach is driven by the pursuit of better remuneration and promotional opportunities, prompting employees to harness their creativity to prevent instances of social loafing.

As a logical extension of these observations, we posit the following assumption:

H1: The organizational justice has a negative impact on the social loafing behavior of enterprise employees.

Organizational justice and organizational commitment. In recent years, scholars have extensively explored the factors influencing of organizational commitment through a plethora of theoretical and empirical studies. These investigation reveal that organizational commitment is affected by individual factors, work factors and organizational factors. Among them, organizational commitment is intricately linked to individual, work, and organizational justice denoting an individual, perceptions of fairness within the organization, has garnered considerable attention for its profound impact on organizational commitment. Academic endeavors have yielded fruitful results, showcasing the positive influence of organizational justice on organizational commitment, and some scholars believe that organizational justice is an important antecedent variable of employees' organizational commitment (Li et al., 2019).posit organizational justice as a crucial antecedent variable shaping employees commitment to the organization.

Conversely, studies have illuminated the adverse effects of perceived unfair treatment within the enterprise. When employees perceive unfairness, their commitment wavers, reflecting in diminished dedication to specific tasks, reduced their subjective initiative and lower work engagement (Vaezi et al., 2017). In instances where fairness is lacking organizations may witness instances of aggressive or slack behavior (Rahaei and Salehzadeh, 2020). Empirical evidence supports these findings, with Colquitt and Rodell (2011) establishing organizational justice as a significant predictor across various dimensions of organizational commitment, a conclusion widely applicable in both Chinese and Western cultural organizations contexts.

For instance, Gan Weiyu (2017) investigation into the new generation of migrant workers revealed that those with a strong sense of fairness demonstrated higher emotional commitment and a reduced inclination to leave. Building on the social exchange theory, Xu and Gao (2019) discovered that fairness in leadership-employee interaction positively influenced employees' emotional commitment. Furthermore, the perception of fairness in layoffs emerged as a crucial factor affecting the organizational commitment of survivors during a crisis situation (Brockner, 1990)

In light of these insights, it is evident that a higher perceived level of organizational among employees fosters a stronger sense of identity and belonging to the enterprise. This heightened organization justice correlateswith increased work motivation, a greater willingness to remain in the organization and a commitment to contributing whole heartedly. Consequently, this enhances employees loyalty to the organization, fortifying their organizational commitment. In alignment with these observations, we posit the following assumptions:

H2: Organizational justice positively impacts the organizational commitment of enterprise employees.

Organizational commitment and social loafing. Organizational commitment delineates the depth of individuals' allegiance and their willingness to actively in organizational endeavors. Consequently, employees exhibiting high organizational, tend to manifest a heighten sense of responsibility toward the organization. This is evidenced by their disciplined work approach active involvement in organizational activities, alignment of personal goals with organizational objectives, and an overall improvement in work performance (Xue and Chu, 2017).

While existing research has not explicitly delved into the direct influence of organizational commitment on employees' social loafing, the link between employees' team goal commitment and social loafing has been substantiated. Research, such as that conducted by (Mulvey et al., 1998), indicates a negative impact of team goal commitment on employees social loafing. This underscores the idea that organizational commitment encapsulates employees' loyalty to the organization, representing a psychological state where employees are willing to remain with invest in the organization. This psychological state is mirrored in their external work behavior, and the latter as the former changes.

Enhancing, employees organizational commitment not only forties their sense of identify and loyalty to the enterprise but also arguments their gravitational pull and cohesion towards the organization. In the pursuit of sustained organization growth, employees become more inclined to invest additional efforts and make substantive contributions to their work (Zou, 2018). Simultaneously, organizational commitment proves advantages to employees by fostering high job satisfaction, nurturing a comfortable and positive psychological stage, yielding and positive rewards within the organization (Ismail et al., 2009). This not only amplifies their sense of identity and belonging within the enterprise but also triggers heightened subjective initiative in their work. Consequently, the discourages opportunistic behavior when individual contributions cannot be evaluated individually evaluated, thereby mitigating the occurrence social loafing employees.

In the light of these observations, the following assumption is posited.

H3: Organizational commitment negatively impact on the social loafing of enterprise employees.

The mediating role of organizational commitment. Organizational justice is the sum of the organization's attitudes and behaviors toward employees, while organizational commitment is the sum of employees' attitudes and behaviors toward the organization. The effective reduction of human resource loss in an organization depends on maintaining a balance between these two components (Tu and Liu, 2006). When organizational justice is perceived by employees, it will enhance employees' favorability and satisfaction with the organization, and elevating their level of organizational commitment (Xue and Chu, 2017). Conversely, the absence of justice within an organization can lead to

aggressive behavior and diminished commitment (Rahaei and Salehzadeh, 2020).

Employees with high organizational commitment exhibit a steadfast determination and a working attitude characterized by loyal to the enterprise. They willingly collaborate with the organization, take initiative and assume responsibility. Such employees are more likely to overcome negative emotions and behaviors, including social loafing and turnover intention (Luo et al., 2013). In existing studies, scholars have generally recognized the positive mediating role of organizational commitment between organizational justice and individual behavior. For instance, affective commitment and continuance commitment mediate the impact of employees' perception of organizational justice on turnover intention (Jiang, 2008). Meanwhile, the study has also shown that when individuals feel fair treatment in any aspect of the team, it will enhance their sense of team identity and their work motivation to inspire them to make more contributions to the organization. This recognition and loyalty to the enterprise, stimulate the subjective initiative and work motivation, reducing instances of their social loafing at work. Consequently, it can be seen that in companies where employees perceive a strong sense of organizational justice, there is a greater willingness to align their fate with the company, intertwining their personal growth with the company's development. This active engagement serves as a deterrent against low commitment and slack behavior (Rahaei and Salehzadeh, 2020). In essence, organizational justice fosters employees' organizational commitment, thereby inhibiting social loafing behavior. Based on these arguments, the following assumption is made:

H4: Organizational commitment plays a mediating role in the negative impact of organizational justice on the social loafing of enterprise employees.

In summary, the theoretical model of this paper is depicted in Fig. 1.

Research design

Research sample. In this study, the method employed for data collection was a questionnaire survey. Given the impact of the epidemic, a combination of on-site and online questionnaires was used to facilitate sample recovery. The formal survey targeted employees of small and medium-sized enterprises (SMEs) across various regions in Henan Province and Wuhan City. To maintain authenticity and reliability of responses, respondents anonymously self-assessed the questionnaire content. All participants completed the questionnaire independently, and stringent controls were implemented from the outset to minimize filling errors.

To ensure the measurement of the questionnaire's reliability and validity, the study translated the English scale into Chinese using the back-translation method. Additionally, relevant scholars were invited to review and refine the questionnaire. To enhance respondents comprehension, the questionnaire underwent a pre-survey phase involving 20 employees who provided feedback. Based on their input, the questionnaire content and wording were revised, culminating in the final version.

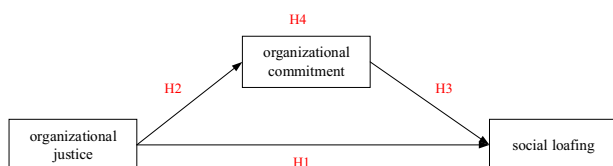


Fig. 1 The theoretical model. Figure of variable relationships shows organizational justice has a significant negative impact on employees' social loafing, organizational commitment plays a mediating role in the impact of organizational justice on social loafing.

A total of 380 questionnaires were distributed for this study. Following data collection, a filtering process was applied to screen out invalid questionnaires characterized by numerous mismatches, missing values, and discernible patterns in responses. Ultimately, 276 valid questionnaires were obtained, resulting in an effective recovery rate of 72.63%.

Descriptive statistical analysis. Descriptive statistical analysis of the questionnaire data was performed using the SPSS software, as shown in Table 1.

In terms of gender, men accounted for 55.8%. Regarding age, employees aged 30 and below constituted the majority, representing 60.9%. Concerning education level, respondents with a bachelor's degree or below comprised the highest proportion at 83.9%. As for the establishment years of companies, the majority of companies had been in existence for more than 3 years, indicating that all the companies interviewed in this article had been affected by the epidemic. This reveals a reasonable distribution of respondents in the questionnaire.

Research variables. As a result of the profound impact of the epidemic on respondents, their perception of organizational justice, organizational commitment and social loafing have undergone changes compared to the pre-epidemic period, and the relationships between these variables have also shifted to varying degrees. Therefore, the quantitative variables selected in this paper are as follows: organizational justice, social loafing, organizational commitment, age and company establishment years. Gender and education level are chosen as qualitative variables. The questionnaire design incorporates classical and established scales from current academic research, and all variables were measured using the Likert 5-level scoring method.

- (1) Organizational justice scale: Adapted from Niehoff and Moorman (1993), and guided by He Xuan (2010), 14 out of 15 items were retained after pilot testing to measure organizational justice. The reliability coefficient of the scale in this study is 0.946, indicating excellent measurement reliability.
- (2) Social loafing scale: Drawing inspiration from George (1992), all 10 items were retained after pilot testing to measure social loafing. The reliability coefficient of the scale in this study is 0.844, demonstrating strong measurement reliability.
- (3) Organization commitment scale: Derived from the work of Meyer and Allen (1997) and Chen and Francesco (2003), with reference to the variable measurement method of Chen Yongxia et al. (2006), 8 items were used to measure organization commitment. The reliability coefficient of the scale in this study is 0.884, indicating robust measurement reliability.
- (4) Control variables: Consistent with prior research (Ruef et al., 2003; Senyard et al., 2014), control variables such as gender, age, education level and company establishment years were selected.

Data analysis and hypothesis testing

Common method deviation testing. This paper employs Harman's single-factor method to test common method bias. During factor analysis, the variance contribution rate of the first factor extracted is 24.145%, which is less than 40%, indicating the absence of a significant common method deviation problem. The contribution rate of the first principal component, when not rotated, is 35.154%, also falling below 40%, suggesting that the

Table 1 Descriptive statistical analysis.

Control variable	Index	Frequency	Percentage (%)
Gender	Man	154	55.8
	Woman	122	44.2
Age	30 years old and below	168	60.9
	31-40 years old	79	28.6
	41-50 years old	25	9.1
	Over 50 years old	4	1.4
Education level	Specialist and below	124	45.1
	Undergraduate	107	38.8
	Master (including MBA/EMBA)	14	5.1
	Phd and above	1	0.4
Company establishment years	1 year and below	27	9.8
	1-3 years (including 3 years)	37	13.4
	3-5 years (including 5 years)	67	24.3
	5-10 years (including 10 years)	124	45.1
	10 years and above	20	7.2

Table 2 Reliability analysis of the major variables.

Variable	Cronbach's alpha	Number of items
Organizational justice	0.946	14
Social loafing	0.844	10
Organizational commitment	0.884	8

common variance issue in this questionnaire is within an acceptable range.

Reliability and validity analysis

Reliability analysis. Reliability tests for organizational justice, social loafing and organizational commitment were conducted using SPSS 19.0 software. As depicted in Table 2, the Cronbach's Alpha coefficient for each scale exceeds 0.8, indicating high internal consistency and good measurement reliability for the measurement scale. The KMO and Bartlett for each measurement scale were 0.945, 0.863, and 0.874, respectively, with statistical significance less than 0.001, demonstrating good validity.

Confirmatory factor analysis. Confirmatory factor analysis (CFA) was conducted on key variables using AMOS22.0. As presented in Table 3, through a comparison of the three-factor model, the two-factor model, and the single-factor model, the results indicate that the three-factor model exhibits a good fit, with each fitting index reaching the ideal level ($X^2/df = 2.025 < 3$; $RMSEA = 0.061$; $RMR = 0.041$; $CFI = 0.906$; $IFI = 0.907$). This suggests good construct validity among the relevant core variables in this study, which can be further analyzed.

Correlation analysis. After the correlation analysis, the mean, standard deviation, and correlation coefficient of relevant variables in this study are presented in Table 4. It indicates that organizational justice is positively correlated with organizational commitment ($r = 0.640, p < 0.01$), organizational justice is negatively correlated with social loafing ($r = -0.236, p < 0.01$), and organizational commitment was negatively correlated with social loafing ($r = -0.290, p < 0.01$). The hypothesis in this paper can be

preliminarily verified, and further hypothesis testing can be conducted.

Hypothesis testing. Baron and Kenny (1986) proposed that testing the mediating effect of a mediating variable requires three linear regression steps: Step 1 measures the relationship between the independent variable and the dependent variable, and its B should be significant; Step 2 measures the relationship between the independent variable and the mediating variable, and its B should also be significant; Step 3 brings the independent variable and the mediating variable into the regression equation simultaneously, measuring the relationship between them and the dependent variable. At this point, the absolute value of B for the independent variable should be smaller than the absolute value of B in step 1. If it is not significant, it means that there is a complete mediating effect. If it is still significant, there is a partial mediating effect, but the relationship between the mediating variable and the dependent variable remains significant.

Following the mediation test procedure proposed by Baron and Kenny (1986), SPSS19.0 software was used for hierarchical regression analysis to verify the mediation effect of organizational commitment in the model. The results are shown in Table 5. Model 1 is the base model testing the relationship between the control variables and the dependent variable. Model 2 is the main model testing the relationship between the independent variable and the dependent variable, namely "organizational justice and social loafing", to verify Hypothesis 1. Model 3 tests the relationship between the independent variable and the mediating variable, namely "organizational justice and organizational commitment", to verify Hypothesis 2. Model 4 tests the relationship between the mediating variable and the dependent variable, namely "organizational commitment and social loafing", to verify Hypothesis 3. Model 5 examines the mediating role of organizational commitment in the impact of organizational justice on social loafing. Organizational justice and organizational commitment are included in the regression equation simultaneously. If the impact of organizational justice on social loafing is weakened or no longer significant, there is a mediating role of organizational commitment, thus verifying hypothesis 4. Model 6 tests whether organizational commitment has a moderating role in the impact of organizational justice on social loafing, verifying the role of the interaction of organizational justice and organizational commitment on social loafing. If the interaction does not have a significant impact on social loafing, organizational commitment does not play a moderating role.

From the above data analysis, the following observations can be made: (1) In Model 2, $B = -0.241, p < 0.001$, indicating that organizational justice has a significant negative impact on employees' social loafing, supporting Hypothesis 1. (2) In Model 3, $B = 0.662, p < 0.001$, demonstrating that organizational justice has a significant positive impact on employees' organizational commitment, supporting Hypothesis 2. (3) In Model 4, $B = -0.305, p < 0.001$, suggesting that organizational commitment has a significant negative impact on employees' social loafing, supporting Hypothesis 3. (4) By eliminating the impact of organizational justice through the path of organizational commitment to influence employees' social loafing, the direct impact of organizational justice on employees' social loafing is tested. In Model 5, where organizational justice and organizational commitment are treated as independent variables together, and compared with Model 2 (where organizational commitment is not added as an independent variable, $B = -0.241, p < 0.001$), the B of organizational justice changes from significant to insignificant, and the negative impact of organizational justice on social loafing weakens (Model 5, $B = -0.068, p > 0.05$).

Table 3 Confirmatory factor analysis of the main variables.

	<i>X²/df</i>	<i>RMSEA</i>	<i>RMR</i>	<i>CFI</i>	<i>IFI</i>
Three-factor model	2.025	0.061	0.041	0.906	0.907
Two-factor model	3.271	0.091	0.049	0.788	0.790
Single factor model	4.452	0.112	0.090	0.678	0.680

The three-factor model comprises organizational justice, organizational commitment, and social loafing; the two-factor model includes organizational justice + organizational commitment (combines these two factors into one factor), and social loafing; the single-factor model involves organizational justice + organizational commitment + social loafing (combines these three factors into one factor).

Table 4 The mean, standard deviation and correlation coefficient.

Variable	1	2	3	4	5	6	7
1. Gender	1						
2. Age	-0.196**	1					
3. Education level	0.143*	0.029	1				
4. Company establishment years	-0.143*	0.512**	0.011	1			
5. Organizational justice	-0.159**	0.190**	-0.014	0.212**	1		
6. Social loafing	-0.087	-0.054	-0.016	-0.113	-0.236**	1	
7. Organizational commitment	-0.006	0.206**	-0.109	0.026	0.640**	-0.290**	1
Mean	1.440	1.510	1.500	2.100	3.627	3.707	1.837
Standard deviation	0.498	0.721	0.612	1.276	0.576	0.626	0.596

***p* < 0.01, and **p* < 0.05.

Table 5 Results of the regression analysis.

Dependent variable		Social loafing		Organizational commitment	Social loafing		
		Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
		B	B	B	B	B	B
Controlled variable	Gender	-0.106	-0.135*	0.129*	-0.091	-0.101	-0.099
	Age	-0.013	0.009	0.212*	0.071	0.064	0.065
	Education level	0	0.000	-0.122	-0.037	-0.032	-0.030
	Company establishment years	-0.122	-0.086	-0.203*	-0.154*	-0.139*	-0.149*
	Organizational justice		-0.241***	0.662***		-0.068	-0.038
Independent variable	Organizational commitment				-0.305***	-0.260***	-0.271***
	Organizational justice X Organizational commitment						-0.082
	R ²	0.024	0.078	0.475	0.111	0.113	0.119
Adjust R ²	0.009	0.060	0.465	0.094	0.093	0.096	
F	1.627	4.521***	48.650***	6.689***	5.693***	5.156***	

****p* < 0.001, and **p* < 0.05.

Meanwhile, the negative impact of organizational commitment on social loafing remains significant (Model 5, *B* = -0.260, *p* < 0.001). This indicates that organizational commitment plays a mediating role in the impact of organizational justice on social loafing, suggesting that organizational justice can increase employees' organizational commitment to inhibit their social loafing, supporting Hypothesis 4. (5) In Model 6, testing whether organizational commitment has a moderating role in the impact of organizational justice on social loafing, with organizational justice, organizational commitment, and the interaction of the two as the independent variables, the impact of the interaction of organizational justice and organizational commitment on social loafing is not significant (Model 6, *B* = -0.082, *p* > 0.05). This shows that the moderating effect of organizational commitment between organizational justice and social loafing is not significant, and organizational commitment does not play a moderating role, but rather plays a mediating role.

In order to further demonstrate the mediating role of organizational commitment in the impact of organizational justice on social loafing, this study refers to the method of Safari et al. (2018) and utilizes the Bootstrap method to test hypothesis 4. Sampling was set to 5000 times and 95% confidence intervals were constructed. The results show that the indirect effect of organizational justice on employees' social loafing through organizational commitment is -0.178, and the confidence interval is [-0.300, -0.061], which does not include 0. Meanwhile, the confidence interval of the direct effect is [-0.233, 0.091], including 0. This further verifies the mediating role of organizational commitment, as shown in Table 6, and hypothesis 4 is confirmed once again.

From the above hypothesis testing, the final model relationship can be summarized as follows: (1) Organizational justice has a significant negative impact on employees' social loafing. (2) Organizational justice has a significant positive impact on

Table 6 The result of testing mediation hypothesis.

	B	LLCI	ULCI
Total effect	-0.249	-0.372	-0.125
Direct effect	-0.071	-0.233	0.091
Mediating effect	-0.178	-0.300	-0.061

employees’ organizational commitment. (3) Organizational commitment has a significant negative impact on employees’ social loafing. (4) Organizational commitment plays a mediating role in the impact of organizational justice on social loafing; organizational justice can increase employees’ organizational commitment to inhibit their social loafing.

Conclusions

In the normalized environment of the COVID-19 epidemic, the development of enterprises has faced unprecedented challenges and difficulties. Among the many influencing factors, the working attitude and behavior of the employees are crucial factors within the enterprise and the core focus of the enterprise human resource management.

In a safe and fair working atmosphere, employees exhibit high enthusiasm for work, maintaining their subjective initiative, stimulating their inner work passion, and inhibiting their negative social loafing, such as “rotten”, which may arise from a loss of motivation. This motivation serves as the power source for enterprises to achieve sustainable development. However, the outbreak of the COVID-19 epidemic has increased environmental uncertainty, widespread unemployment and the challenges posed by new forms and contents of work, significantly affecting the intrinsic motivation of employees and leading to changes in their social loafing. This paper pays more attention to inhibiting employees’ social loafing to stimulate their potential, and relying on collective strength to overcome the adverse effects brought by the epidemic.

In this regard, based on the social exchange theory, this study explores the antecedents of employees’ social loafing from the psychological perspective of individual fairness perception. It analyzes the influence mechanism of organizational justice on employees’ social loafing, and examines the mediating role of organizational commitment in the process of organizational justice affecting employees’ social loafing. This approach reveals new significant relationships between the variables in the context of the epidemic that are enhanced compared to before. The study then proposes corresponding countermeasures to stimulate employees’ potential, maintain the high-performance level of enterprises, and promote the sustainable development of enterprises, which holds important practical significance. This study actively responds to a series of enterprise support policies issued by the government against the background of the epidemic and has important theoretical significance and application value for promoting the healthy and sustainable development of enterprises.

Specifically, the following conclusions are obtained. First, organizational justice has a negative impact on the social loafing of enterprise employees. Employees with a high perception of organizational justice will feel that the organization treats them fairly, and that employees’ personal efforts have been accurately evaluated and rewarded accordingly. In this case, employees will experience very positive emotions, be more willing to complete the tasks assigned by the organization with high quality, and more actively express themselves. Correspondingly, the negative behavior of employees’ social loafing will be suppressed.

Second, the organizational commitment plays a mediating role in the negative impact of organizational justice on the social loafing of enterprise employees. Only when the individual’s

perception of the organizational atmosphere tends to be fair will they have positive feelings. The attachment relationship between employees and the organization will become stronger, and they will have a high commitment to the organization, integrating the organizational goals with their own goals and having the courage to take responsibilities. Once an individual forms an organizational commitment, they will strive to complete the tasks assigned by the enterprise. Meanwhile, it is very easy to overcome negative emotions, such as resignation and social loafing, that are not conducive to organizational development. This helps improve the efficiency and quality of teamwork and promote the further development of the organization.

This study has certain theoretical and practical value. In theory, it aims to (1) explore the antecedents of employees’ social loafing and verify the impact of organizational justice on employees’ social loafing; (2) analyze the mediating role of organizational commitment in the process of organizational justice affecting employees’ social loafing and verify the mediating effect of organizational commitment in the main effect relationship.

In practice, to prevent the occurrence of employees’ slack and free-riding in their work, it is essential to ensure that employees have a positive perception of fairness within the enterprise. Employees should feel that their efforts and contributions are accurately evaluated, enabling them to recognize their importance to the company’s development and be willing to make continuous contributions to the enterprise growth. In this regard, the enterprise should implement following guarantee measures:

- (1) Integrate enterprise’s strategic planning with the employee career development planning: Define a clear direction and goal for the enterprise’s development, creating a scientific career development plan for employees. This plan should guide employees to take responsibility bravely, aligning enterprise development with employees’ growth.
- (2) Establish a scientific employee assessment system and distribution mechanism: Continuously optimize and improve the evaluation mechanism within the enterprise to achieve accurate assessment of employees’ work. Provide corresponding returns based on the assessment results.
- (3) Foster a corporate culture of fair competition and humanistic care: Establish a corporate culture where employees have a sense of identity and belonging. Show concern for their work and life, monitor their emotional fluctuations in a timely manner, and address psychological negative emotions in their work.

The study also has certain limitations, which can be gradually improved in future research: (1) Data collection method is singular, employing only a questionnaire. Future research could incorporate both questionnaires and interviews to gather more comprehensive data. (2) Although the social loafing scale used in this study is a classic and mature scale with scientific logic, it is designed based on Western cultural scenarios. Future research can develop a social loafing scale more suitable for Chinese localized scenarios. (3) Future research can further explore the situational factors influencing the impact of organizational justice on social loafing.

Data availability

The data that support the findings of this study are available from the corresponding author upon reasonable request.

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Author contributions

All authors contributed to the study conception and design. Material preparation, data collection and analysis were performed by CC, WB, AH and LM. The first draft of the manuscript was written by CC and WB and all authors commented on previous versions of the manuscript. All authors read and approved the final manuscript.

Competing interests

The authors declare no competing interests.

Ethical approval

This research does not involve any human subjects and animal testing and, therefore, does not require an ethical statement number.

Informed consent

All subjects and their parents/legal guardians provided appropriate informed assent and consent for this study. All methods were performed in accordance with the relevant guidelines and regulations.

Additional information

Correspondence and requests for materials should be addressed to Beibei Wang.

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