
RESEARCH ARTICLE

Impact of Leader-Leader Exchange on Project Citizenship Behavior: Roles of Job Insecurity and Psychological Empowerment

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ABSTRACT

Whether project managers exhibit project citizenship behavior has a significant impact on project performance. However, existing research has not fully explored the factors that influence project citizenship behavior. Drawing on social exchange theory, this study proposes a moderated mediation model to examine the impact of project managers' job insecurity on their project citizenship behavior. A questionnaire survey was conducted with 233 project managers in China. The results indicated that: (1) leader-leader exchange has a significant positive effect on project citizenship behavior; (2) job insecurity partially mediates the relationship between leader-leader exchange and project citizenship behavior; and (3) psychological empowerment strengthens the negative effect of leader-leader exchange on job insecurity. Our findings provide useful insights for the project management and organizational behavior literatures.

KEYWORDS

Leader-leader exchange; Project citizenship behavior; Psychological empowerment; Job insecurity; Project manager

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1. Introduction

In the field of project management, the behavior of project managers has a far-reaching impact on project performance and teamwork. Social exchange theory provides a powerful perspective to understand how the project manager establishes and maintains social relations in the organizational environment, and shapes his/her own behavior tendency in the process (Ahmad et al., 2023). This theory emphasizes the process of social exchange between individuals and points out that the quality of social relations affects individuals' attitudes, emotions and behavioral decisions. As a key role in the project team, the project manager not only interacts with the team members, but also needs to establish a stable social exchange relationship with the supervisor (Yao et al., 2023). This leader-leader exchange may have an important impact on the psychological experience and behavior pattern of the project manager.

In the dynamic and complex project environment, the project manager's job insecurity has gradually become the core topic of academic research and practice (Vu et al., 2022). Job insecurity refers to an individual's uncertain perception of his/her own career stability, which may come from organizational change, intensified market competition or the management style of superior leaders. Under the framework of social exchange theory, the quality of leader-leader exchange may affect the project manager's expectation of his career prospects (Cook et al., 2013). When the social exchange relationship between the project manager and the supervisor is stable and the resource support and trust are high, their job insecurity may decrease; On the contrary, if the social exchange relationship is alienated, the project manager may enhance job insecurity due to the lack of stable support and recognition.

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As a voluntary behavior beyond the scope of formal responsibilities, project citizenship behavior plays a positive role in the cooperation efficiency, innovation ability and overall performance of the project team (Yang et al., 2022). Project citizenship behavior is not only reflected in the initiative and sense of responsibility of the project manager in task execution, but also includes his/her tendency to promote cooperation, share knowledge and support organizational goals within the team. However, social exchange theory points out that voluntary sexual behavior of individuals is often regulated by their psychological state (Cropanzano et al., 2017). In the case of strong job insecurity, project managers may be more inclined to adopt self-protection strategies and reduce extra efforts, thus reducing the performance of project citizenship behavior (M.-J. Kim & Kim, 2020). Accordingly, if the project manager's job insecurity can be reduced, it may help to enhance his positive behavior and further promote the improvement of project performance.

Psychological empowerment is regarded as an important psychological mechanism that affects individuals' work attitude and behavior, and its core lies in individuals' cognition of their own abilities, work significance and autonomy (Caesens et al., 2020). If the project manager can experience a stronger psychological empowerment in his/her work, he/she may take a more positive attitude towards his/her career development and job stability. Social exchange theory emphasizes that individual's behavior in organizational environment is influenced by resource flow and trust relationship, and psychological empowerment may play a regulatory role in this process (Fan et al., 2021). If project managers have higher psychological empowerment, they may be more inclined to turn positive signals in leader-leader exchange into self-efficacy, thus weakening the adverse impact of negative environmental factors on themselves (Mubarak & Noor, 2018). In the case of a good leader-leader exchange, psychological empowerment may further strengthen the project manager's sense of professional security, making him/her more focused on team contribution and project performance, rather than anxiety about the uncertainty of career prospects.

To sum up, under the framework of social exchange theory, leader-leader exchange not only affects the job insecurity of project managers, but also may further shape their project citizenship behavior. With the continuous development of project management practice, an in-depth understanding of how the social exchange process shapes the psychological and behavioral characteristics of project managers will help optimize organizational management strategies and improve the cooperation efficiency of project teams. Under this background, it is of great value to explore leader-leader exchange, the relationship between job insecurity and project citizenship behavior, and further investigate the possible role of psychological empowerment in it, which will enrich the application of social exchange theory and improve project management practice.

2. Literature Review and Hypothesis Development

2.1 Leader-Leader Exchange and Project Citizenship Behavior

As a social exchange relationship, leader-leader exchange affects the role orientation and behavior of project managers in the project team (Herdman et al., 2017). Based on social exchange theory, the quality of the relationship determines the resources, support and trust that the project manager gets from the supervisor. High-quality leader-leader exchange benefits the project manager in terms of career development, work autonomy and resource acquisition, thus enhancing his/her sense of belonging and responsibility (Herdman et al., 2014). This positive experience not only improves its investment in project management, but also promotes its spontaneous project citizenship behavior.

Project citizenship behavior is an autonomous behavior beyond the scope of formal responsibilities, which helps to improve the overall efficiency of the project team (Braun et al., 2012). In the complex and changeable project environment, project managers often need to go beyond the contractual tasks, offer help, share knowledge and maintain the teamwork atmosphere. High-quality leader-leader exchange provides trust and recognition for the project manager, so that he/she can devote himself/herself to the project work with more peace of mind without worrying too much about the gain and loss of personal interests (Hwang et al., 2018). The support and affirmation strengthened its organizational commitment, and then encouraged it to show a higher level of project citizenship behavior in the process of project promotion, such as actively coordinating resources, promoting team members' collaboration and promoting organizational innovation.

In addition, the positive role of leader-leader exchange is also reflected in the establishment of emotional ties (Korkmazyurek & Korkmazyurek, 2023). When the project manager and the supervisor maintain a good social exchange relationship, the communication efficiency and emotional resonance of both parties will be improved. This emotional connection reduces the project manager's sense of isolation in the face of challenges and makes him/her more willing to make extra efforts for the team and organizational goals (Shafi et al., 2021). At the same time, in leader-leader exchange, the fairness and respect felt by project managers further enhance their sense of self-efficacy, enabling them to respond to project challenges with a more positive attitude, thus showing a higher level of project citizenship behavior. Based on the above analysis, the following hypothesis is proposed.

Hypothesis 1. Leader-leader exchange positively influences project citizenship behavior.

2.2 Mediating Role of Job Insecurity

Under the framework of social exchange theory, leader-leader exchange may play a role through the intermediary variable of job insecurity in the process of influencing project citizenship behavior (Shoukat et al., 2022). Leader-leader exchange reflects the social exchange relationship between the project manager and his supervisor. The quality of this exchange relationship not only affects the project manager's cognition of his own working environment, but also may shape his/her psychological state and behavior. Because project managers usually assume the responsibility of cross-functional coordination and resource integration, the uncertainty of working environment is high, and the social exchange relationship within the organization has become an important factor affecting their sense of career stability (Reich & Sauer, 2010).

When the social exchange relationship between the project manager and the supervisor is closer and the interaction based on the principle of trust and reciprocity is more frequent, the project manager can obtain stable support and resources from this relationship (Richter & Näswall, 2019). This support not only includes clear work guidance and feedback, but also involves hidden career development opportunities and organizational recognition. On the contrary, if the quality of leader-leader exchange is low, the project manager may lack the necessary guidance and resources, and even face the problem of unclear responsibilities or unbalanced powers and responsibilities (Herdman et al., 2014). This situation will easily aggravate the uncertainty of the project manager's role and make him/her feel more anxious when facing organizational changes or resource adjustment. Based on this, the following hypothesis is proposed.

Hypothesis 2. Leader-leader exchange negatively influences job insecurity.

After the formation of job insecurity, project managers may adjust their behavior patterns to cope with this uncertain state. Because job insecurity stems from uncertain expectations for the future, individuals tend to give priority to short-term survival needs rather than long-term career development goals (Marx-Fleck et al., 2021). This psychological state may weaken the initiative of the project manager, make him/her reduce his/her voluntary investment in the project management process and reduce his/her commitment to the team and organizational goals. Project citizenship behavior is a voluntary contribution beyond the requirements of formal duties, including promoting teamwork, actively sharing knowledge and actively coping with problems (Braun et al., 2013). These behaviors are usually based on the individual's sense of security and belonging to the organizational environment, and the enhancement of job insecurity may weaken the project manager's willingness to invest in these aspects.

In addition, job insecurity may lead individuals to adopt more defensive strategies, tend to avoid risks and reduce informal interaction with colleagues to avoid possible negative evaluation or responsibility (Hngoi et al., 2024). For the project manager, this means that in the process of project implementation, it may reduce the initiative of cross-departmental collaboration, limit the willingness to share knowledge, and even adopt a more conservative response to problems. Compared with actively seeking solutions, individuals may be more inclined to maintain the status quo to reduce the additional responsibilities or challenges that may be brought (Bond-Barnard et al., 2018). This change in behavior pattern may further weaken the synergy effect of the project team, thus affecting the overall project performance. Based on this, the following hypotheses are proposed.

Hypothesis 3. Job insecurity negatively influences project citizenship behavior.

Hypothesis 4. Leader-leader exchange positively influences project citizenship behavior through job insecurity.

2.3 Moderating Role of Psychological Empowerment

Leader-leader exchange affects the job insecurity of project managers, but the intensity of this influence may be moderated by psychological empowerment. Psychological empowerment, as an individual psychological state, may shape the project manager's cognitive way of working environment, thus changing his/her dependence on social exchange relations (Mathew & Nair, 2022). In the case of high psychological empowerment, individuals tend to think that they have the ability to influence the working environment, so it is easier to regard leader-leader exchange as a supporting resource and gain a stronger sense of security from it. In contrast, individuals with low psychological empowerment may rely more on the stability of the external environment to reduce uncertainty, so the role of leader-leader exchange may be relatively weak (Ambad et al., 2021).

When the project manager feels strong psychological empowerment in his/her work, his/her sense of self-efficacy, sense of work significance and autonomy will be further enhanced. In this state, project managers may more easily interpret trust, information sharing and supportive interaction in leader-leader exchange as resources to enhance their influence (Zhao et al., 2023). This accumulation of resources not only enhances the individual's sense of control over the work situation, but also makes him/her have a stronger psychological resilience in the face of external changes. In other words, the project manager with high

psychological empowerment can make full use of the stability brought by this relationship when establishing a good exchange relationship with the supervisor, thus reducing the uncertainty about his/her career future (Mathew & Nair, 2022).

In contrast, individuals with low psychological empowerment may lack sufficient autonomy and sense of control, and it is easier to pin their career stability on the certainty of the external environment. When facing leader-leader exchange, such individuals may mainly rely on external recognition and support to confirm their role orientation, rather than actively shaping the working environment (Kumar et al., 2022). Therefore, even if the quality of leader-leader exchange is high, the project manager may still be anxious because of the uncertainty about the future of the organization, and it is difficult to effectively reduce job insecurity (Wang et al., 2015). In this situation, the negative effect of leader-leader exchange on job insecurity may be weakened.

Further, the enhancement of psychological empowerment may strengthen the positive feedback mechanism of individuals in social exchange relations. When project managers feel high psychological empowerment, they are more inclined to actively explore the potential advantages brought by leader-leader exchange and further consolidate this relationship through their own efforts (Xiao et al., 2025). For example, they may be more willing to communicate openly with the supervisor to get additional information support, or show stronger execution ability in key tasks to win more decision-making space. These behaviors, in turn, will further strengthen individuals' confidence in their career stability, and then reduce job insecurity (Ma et al., 2022). Based on this, the following hypothesis is proposed.

Hypothesis 5. Psychological empowerment negatively moderates the relationship between leader-leader exchange and job insecurity, such that the negative effect of leader-leader exchange on job insecurity is strengthened when psychological empowerment is higher.

Figure 1 presents the conceptual model of this study.

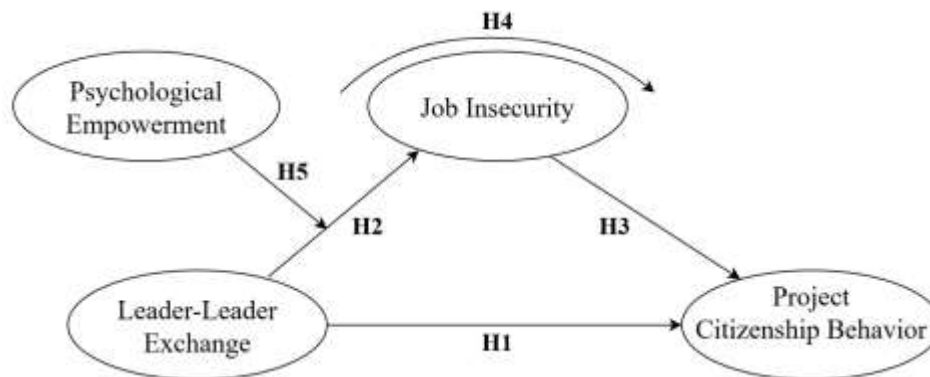


Figure 1: Conceptual Model

3. Methods

3.1 Sample and Procedure

The research team first distributed the questionnaires to the target respondents working as project managers through the social platform Maimai. Then, based on their recommendations, we invited 1-3 of their colleagues who also held the same position in their organizations to participate in the survey. The data collection lasted for about twenty days, during which a total of 274 questionnaires were distributed. After removing the questionnaires with more than three unanswered items, 233 questionnaires left, resulting in a valid response rate of 85.0%. Table 1 shows the profile of participants.

Table 1: Profile of Participants (N = 233)

Characteristic	Category	Number	Percentage
Gender	Male	136	58.4%
	Female	97	41.6%
Age	≤ 19	8	3.4%
	20-29	72	30.9%
	30-39	98	42.1%
	40-49	43	18.5%
	≥ 50	12	5.2%
Education level	Junior college or below	41	17.6%

Industry	Bachelor	121	51.9%
	Master	69	29.6%
	Doctor	2	0.9%
	Electronics/IT	74	31.8%
	Manufacture	48	20.6%
	Finance	46	19.7%
	Construction	41	17.6%
	Others	24	10.3%

3.2 Measure

All scales are reflective, and range from 1 (strongly disagree) to 7 (strongly agree).

To assess leader-leader exchange, we used a 7-item scale. This scale was adapted by Chen & Lin (2018) from Graen & Uhl-Bien's (1995) leader-member exchange scale.

Job insecurity was assessed using a 5-item scale. This scale was developed by Wang et al. (2014) drawing on the research of Cartwright & Cooper (2002).

We assessed psychological empowerment using a 12-item scale developed by Spreitzer (1995). This scale consists of four dimensions, each with three items: meaning, competence, self-determination, and impact.

Following Braun et al.'s (2012) guidance, we used a 12-item scale to assess project citizenship behavior. This scale consists of four dimensions, each with three items: helping behavior, loyalty behavior, compliance behavior, and initiative behavior.

We chose age and gender as the control variables for project managers' project citizenship behavior, following Carlson & Wu's (2012) recommendation.

3.3 Data Analysis

Partial least squares structural equation modeling (PLS-SEM) is a causal modeling method that maximizes the explained variance of latent constructs (Hair Jr et al., 2021) and has been widely used in the social science. Compared to the traditional covariance-based SEM, PLS-SEM is particularly suitable for studies with small sample sizes, non-normal data, or complex models (Sosik et al., 2009). Therefore, this study used SmartPLS 4 to test the hypothesized relationships.

4. Results

4.1 Reliability and Validity

The results of the reliability and validity of the measurement model are shown in Table 2. Hair Jr et al. (2017) point out that reliability lies between the Cronbach's α and composite reliability (CR) estimates. All Cronbach's α and CR values exceeded the threshold of 0.7, indicating that all constructs in the data had high internal consistency and good reliability (Hair et al., 2020). Factor loadings ranged from .72 to .88, reaching an acceptable level (Guadagnoli & Velicer, 1988). The average variance extracted (AVE) for all constructs exceeded the threshold of 0.5, reflecting satisfactory convergent validity (Hair et al., 2011).

Table 3 shows the descriptive statistic results and the correlations among constructs. The square root of each construct's AVE value exceeded its correlations with other latent variables in the model, meeting the criteria proposed by Fornell & Larcker (1981), indicating the discriminant validity was also good.

Table 1: Outer Loadings, Composite Reliability (CR), and Average Variance Extracted (AVE)

Construct	Outer loading	CR	AVE
Leader-leader exchange	0.73-0.82	.90	.61
Job insecurity	0.77-0.85	.88	.65
Psychological empowerment		.75	.58
<i>Meaning</i>	0.81-0.85	.84	.76
<i>Competence</i>	0.80-0.87	.81	.66
<i>Self-determination</i>	0.79-0.84	.84	.70
<i>Impact</i>	0.72-0.81	.91	.77

Project citizenship behavior		.80	.59
<i>Initiative behavior</i>	0.81-0.84	.92	.74
<i>Compliance behavior</i>	0.78-0.86	.89	.71
<i>Loyalty behavior</i>	0.79-0.87	.88	.75
<i>Helping behavior</i>	0.83-0.88	.90	.72

Table 3: Means, Standard Deviations (SD), and Correlations

Construct	Mean	SD	1	2	3	4
1. Leader-leader exchange	3.65	.69	.78			
2. Job insecurity	3.55	.71	.53	.81		
3. Psychological empowerment	3.71	.63	.41	.39	.76	
4. Project citizenship behavior	3.68	.55	.38	.51	.47	.77

Note. Bold numbers are the square roots of AVE values. Numbers below diagonal are inter-construct correlations.

4.2 Hypothesis Testing

In order to assess the significance of the path coefficients, mediation effects, and moderation effects, we used the bootstrapping method (based on 5000 subsamples, bias-corrected and accelerated bootstrap, two-tailed, significance level of .05) to test the structural model (Chin, 2010). Table 4 shows the results of hypothesis testing. The path coefficient between leader-leader exchange and project citizenship behavior was .21 ($p < .001$), supporting Hypothesis 1. The path coefficient between leader-leader exchange and job insecurity was $-.35$ ($p < .001$), supporting Hypothesis 2. The path coefficient between job insecurity and project citizenship behavior was $-.38$ ($p < .001$), supporting Hypothesis 3.

Next, the mediating role of job insecurity was tested. The indirect effect of leader-leader exchange on project citizenship behavior through job insecurity was .13 ($p < .001$), supporting Hypothesis 4. Since the direct effect of leader-leader exchange on project citizenship behavior was still significant (i.e., Hypothesis 1), it can be concluded that job insecurity partially mediated the relationship between leader-leader exchange and project citizenship behavior.

Finally, the effect of the interaction term "psychological empowerment \times leader-leader exchange" on job insecurity was $-.10$ ($p < .001$), indicating that psychological empowerment negatively moderated the relationship between leader-leader exchange and job insecurity, supporting Hypothesis 5.

Regarding the control variables, gender was not significant ($p = .357$), while age had a significant negative effect on project citizenship behavior ($\beta = -.09$, $t = 2.13$, $p < .05$).

Table 4: Results of hypothesis testing

Hypothesis	Causal path	β	t -statistic	p -value	Result
Hypothesis 1	Leader-leader exchange \rightarrow Project citizenship behavior	.21	7.33	.000	Supported
Hypothesis 2	Leader-leader exchange \rightarrow Job insecurity	$-.35$	4.82	.000	Supported
Hypothesis 3	Job insecurity \rightarrow Project citizenship behavior	$-.38$	3.51	.000	Supported
Hypothesis 4	Leader-leader exchange \rightarrow Job insecurity \rightarrow Project citizenship behavior	.13	4.78	.000	Supported
Hypothesis 5	Psychological empowerment \times Leader-leader exchange \rightarrow Job insecurity	$-.10$	5.15	.000	Supported

5. Discussion

5.1 Theoretical Implications

First, this study extends the applicability of social exchange theory in the project management context. Social exchange theory is usually applied to the study of the relationship between superiors and subordinates or team, but its applicability to the special group of project managers needs further discussion (Cropanzano et al., 2017). This study focuses on leader-leader exchange between the project manager and his/her supervisor, and reveals how this exchange relationship affects project citizenship behavior of the project manager. Previous studies mainly focused on the influence of leader-member exchange on subordinates' behavior (S. M. Kim & Jo, 2024), but ignored the unique social exchange process faced by project manager, a role between top managers and executive teams. The project manager should not only accept the leadership of the superior, but also coordinate the implementation of team members, so the quality of his/her social exchange relationship not only affects personal perception,

but also may have a far-reaching impact on the performance and behavior at the project level (Xia et al., 2022). By verifying the indirect effect of leader-leader exchange on project citizenship behavior, this study enriches the scope of application of social exchange theory and emphasizes the role of project manager as the exchange subject. In addition, the research results show that leader-leader exchange not only affects the behavior of the project manager directly, but also indirectly shapes his/her job performance by affecting his/her job insecurity. This discovery not only deepens the social exchange theory's understanding of the mechanism of individual perception in the exchange process, but also urges the follow-up research to further explore how exchange relationships at different levels interact, and ultimately affect the project results at the organizational level.

Second, this study deepens the mechanism of job insecurity and expands its boundary conditions. Job insecurity has long been regarded as a negative work experience, and many studies pay attention to its negative impact on employees' mental health, organizational commitment and job performance (Jeong et al., 2023). However, most of the existing studies focus on the situation of ordinary employees or formal members of organizations (Vu et al., 2022), and less attention is paid to project managers, a special group that is highly dependent on organizational support. The findings of this study show that the project manager's job insecurity is not only influenced by his/her social exchange relationship with the supervisor, but also further weakens his/her project citizenship behavior. This mechanism has not been fully revealed in the research of project management. In addition, the research results also confirm that psychological empowerment plays a key moderating role in this process, that is, when the project manager's psychological empowerment level is high, the negative impact of leader-leader exchange on job insecurity will be stronger. This discovery not only shows the importance of individual's subjective cognition in the process of social exchange, but also suggests that future research needs to further explore how other possible boundary conditions, such as project complexity, organizational culture or different types of incentive mechanisms affect this process. By identifying the moderating role of psychological empowerment, this study also provides a new perspective for managers, that is, improving the psychological empowerment perception of project managers while improving social exchange relations may be an effective strategy to reduce their job insecurity and promote positive project behavior.

Finally, this study enriches the literature about the antecedents of project citizenship behavior. Project citizenship behavior is an important research topic in the field of project management, which reflects the voluntary behavior of project managers outside their formal duties and contributes to the success of the project (Naeem Mian et al., 2023). However, the existing research pays little attention to the antecedent variables of project citizenship behavior, especially on how its social exchange process affects the civic behavior of project managers (Yang et al., 2022). Previous studies often focus on the influence of individual characteristics, leadership style or organizational support on project citizenship behavior (Kyambade et al., 2024), and the contribution of this study is to reveal how the variable leader-leader exchange indirectly affects project citizenship behavior through job insecurity. This discovery shows that the civic behavior of project managers is not only influenced by individual motivation and organizational environment, but also shaped by the social exchange relationship between them and their supervisors, and this influence does not happen directly, but is transmitted through individual job insecurity as an intermediary variable. This perspective of this study makes up for the lack of research on the antecedents of project citizenship behavior in the existing literature, and emphasizes the importance of social exchange theory in understanding citizen behavior in the context of project management. In addition, the study further shows that the incentive mechanism of project citizenship behavior may not only depend on the individual's loyalty or sense of responsibility to the organization, but also be influenced by the social support and resources provided by the superior leaders, which provides a new theoretical framework and empirical direction for future research.

5.2 Managerial Implications

The study has two main managerial implications. On the one hand, the project manager should pay attention to the social exchange relationship with the supervisor to reduce the job insecurity. Project managers are faced with a high degree of uncertainty in the project life cycle, and usually need to coordinate the interests of all parties in an environment with limited resources and frequent changes in demand. In this process, the relationship with the supervisor not only affects the smooth implementation of the project, but also may shape the psychological feelings of the project manager. Previous research on project management mostly emphasized the leadership, communication ability or decision-making ability of the project manager, but paid little attention to the effect of his superior relationship on his psychological state (Xiao et al., 2025). However, social exchange theory points out that individuals' perception of organizational environment partly comes from their interaction experience with key people, especially in the face of complex work tasks, the support of supervisors may become an important factor to relieve stress (Cook et al., 2013). If the project manager can actively maintain the positive relationship with the supervisor, such as regularly reporting the project progress, actively seeking feedback and showing the recognition of organizational goals, it may help to enhance trust and reduce anxiety about his/her career stability. In addition, the role of psychological empowerment suggests that project managers can further reduce the sense of uncertainty caused by changes in organizational environment by cultivating their autonomy, influence and sense of work significance. In the case that organizational policies and project conditions are difficult to change, if the project manager can strengthen the interaction with

the supervisor and improve his/her psychological empowerment level, he/she may show higher stability in the face of challenges and show stronger initiative and responsibility in project management.

On the other hand, organizations should attach importance to the psychological state of project managers and provide effective authorization mechanisms. The project manager is often in the middle level in the organizational structure, and needs to coordinate the high-level strategic objectives with the actual operation of the executive team. Traditional project management research pays more attention to the skill training and performance evaluation of project managers, and less attention to the influence of their psychological state on project effectiveness (Brewer & Dittman, 2022). However, in a highly dynamic project environment, if the project manager feels a high sense of insecurity, he/she may tend to be conservative in the decision-making process, reduce voluntary investment and even affect team morale. Therefore, organizations should not only pay attention to the ability building of project managers, but also realize the potential role of their psychological experience in the success of projects. By improving the quality of leader-leader exchange, the organization can enhance the project manager's sense of security about his/her role and reduce the anxiety caused by organizational change or uncertainty. In addition, the moderating role of psychological empowerment shows that it may not be enough to rely solely on leadership support, and organizations should also provide appropriate empowerment mechanisms, such as giving project managers greater decision-making power, encouraging them to adjust their strategies independently in the process of project promotion, and ensuring that they have enough voice in the organization. These measures may not only help the project manager to cope with uncertainty better, but also urge him/her to show a higher level of civic behavior in project management, thus improving the overall project operation efficiency and teamwork effect.

5.3 Limitations and Further Research

There are several limitations to this study. First, the singularity of data sources may limit the generalization of research conclusions. The data of this study only come from the project manager's own self-report, which may lead to common method deviation, that is, because all variables were measured from the same source, the respondents' cognitive deviation or social expectation effect may affect their answers, thus affecting the true degree of the relationship between variables. In addition, the evaluation from the project manager's supervisor or colleagues was not collected, which made the research results lack of multi-perspective verification. For example, although project citizenship behavior reflects the behavior tendency of project managers, its actual performance still needs to be supplemented by the observation of other stakeholders. Therefore, multi-source data collection can be used in future research, such as evaluation by supervisors or team members, to improve the reliability and external validity of research conclusions.

Second, the limitation of causal inference is another aspect that needs attention in this study. This study used cross-sectional data, that is, the data of all variables were collected at the same time point, which makes the research conclusion more inclined to correlation interpretation, and it is difficult to provide clear causal inference. For example, although the research assumes that leader-leader exchange can improve project citizenship behavior by reducing the job insecurity, there is also the possibility of reverse causality. For example, a project manager showing a higher level of project citizenship behavior may enhance his/her exchange relationship with the supervisor, or low job insecurity of the project manager may be caused by other factors (such as organizational culture or industry stability) rather than leader-leader exchange. Therefore, longitudinal design or experimental methods can be used in future research to identify the causal relationship between variables more clearly.

Third, the neglect of situational factors may affect the applicability of the research conclusions. This study did not fully consider the influence of organizational level or industry characteristics on the social exchange relationship and behavior of project managers, and these factors may have different moderating effects in different organizational cultures or project environments. For example, in a company whose organizational culture highly supports employee empowerment, psychological empowerment may have a stronger moderating effect on job insecurity, but it may be weaker in an organization with centralized power or strict hierarchy. In addition, factors such as industry stability and project type (for example, the management styles of IT projects and construction projects may be different) may also affect the mode of leader-leader exchange on the psychology and behavior of project managers. Therefore, future research can introduce organizational situational variables or make cross-industry comparisons to improve the universality of research conclusions.

5.3 Conclusion

Based on social exchange theory, this paper reveals how leader-leader exchange promotes the occurrence of project citizenship behavior by reducing job insecurity. At the same time, it is found that psychological empowerment plays a moderating role in the influence of leader-leader exchange on job insecurity, that is, when the level of psychological empowerment of project managers is higher, the negative influence of leader-leader exchange on job insecurity will be stronger. This study enriches the application of social exchange theory in project management context, deepens the understanding of influencing factors of project manager's behavior, and provides practical enlightenment for improving project management efficiency.

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