

A Multilevel Study on Antecedents and Moderators of Employee Silence

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Abstract

This study contributes to the literature on employee silence by examining both individual- and team-level antecedents and identifying how supportive factors can buffer negative influences. Specifically, the study investigates the impact of social loafing and group conflict on employee silence, while also exploring the moderating effects of developmental experience and leader-member exchange (LMX). At the individual level, reduced accountability through social loafing is associated with increased silence. At the team level, group conflict undermines psychological safety and restricts open expression. In contrast, developmental experiences and high-quality LMX relationships foster responsibility, confidence, and inclusion, thus encouraging voice behavior. Data were collected from 129 employees working in an autonomous unit of a major Mongolian mining company. Structural equation modeling was employed to test the hypothesized relationships. The findings provide new insights into how developmental and relational factors can be leveraged to reduce silence in high-risk, team-based environments. Practical implications include targeted leadership development and employee training initiatives to cultivate a psychologically safe and communicative organizational climate.

Keywords: employee silence, employee voice, social loafing, developmental experience, group conflict, leader-member exchange

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1. Introduction

The concept of employee voice, which refers to workers deliberately offering useful ideas, concerns, or critiques, has been widely acknowledged as an important asset for organizations (Hirschman, 1970). By proactively sharing ideas and feedback, employees facilitate organizational learning, innovation, and adaptability. However, employee voice has a counterpart employee silence, defined as the intentional choice to withhold information that could benefit the organization which increasingly draws attention for its potential to undermine organizational effectiveness. Understanding the interplay between voice and silence is essential for fostering healthy communication within organizations.

Employee silence occurs when employees consciously choose not to speak up about workplace issues despite awareness or concern. Prior research identifies several types of silence, including acquiescent silence (compliance-driven withholding), quiescent silence (fear-driven withholding), prosocial silence (motivated by protecting others), and opportunistic silence (strategic withholding) (Knoll & Dick, 2013). Such silence disrupts feedback mechanisms, inhibits innovation, and reduces an organization's capacity to respond effectively to change. Moreover, it suppresses employee commitment and initiative, negatively affecting organizational culture and the climate for creativity (Krupah, 2021; Krupah & Krupah, 2022). It also increases risks of burnout and job-related stress, diminishes employee engagement, and threatens employee retention (Laeque & Bakhtawari, 2014). These significant consequences highlight the importance of identifying the antecedents of employee silence at multiple organizational levels.

Addressing this need, the current study examines key antecedents of silence at both individual and team levels. At the individual level, social loafing, defined as the tendency for some group members to reduce effort and rely on others to complete tasks, is expected to increase silence by lowering personal accountability and engagement, which can undermine overall team performance. At the team level, group conflict is proposed to exacerbate silence by creating relational tensions and communication barriers.

On the other hand, factors that help employees break their silence include developmental experiences that improve their skills and self-confidence, as well as high-quality leader–member exchange relationships that are based on trust, support, and mutual respect and encourage open communication. This study further explores the moderating effects of developmental experience and LMX, meaning how these positive factors might weaken the negative impacts of social loafing and group conflict on silence.

Empirically, this study draws on data from 129 employees within an independent division of a major Mongolian mining firm, offering insight into silence within a high-stakes industrial environment. Using structural equation modeling, the study rigorously tests the proposed multi-level model, providing robust evidence for the theorized relationships.

2. Theoretical background and hypotheses

2.1 Employee silence

According to Morrison and Milliken (2000), employee silence involves an intentional decision by employees not to share significant thoughts, questions, or concerns that are relevant to their work and organizational context. Employee silence also denotes the intentional withholding of genuine concerns or issues related to individual and group behaviors, perceptions, and emotional evaluations from those empowered to initiate change. (Pinder & Harlos, 2001).

A review of prior research reveals that factors influencing employee silence can be broadly categorized into leader-related factors, job perceptions and beliefs, and individual dispositions (Hao et al., 2022). In the context of leadership, harmful approaches such as abusive or authoritarian leadership are associated with higher levels of employee silence, while positive leadership styles like empowering, transformational, and ethical leadership generally contribute to reducing it (Hao et al., 2015). Other leader-related determinants include power imbalances between supervisors and subordinates, leader-member exchange quality (Lam & Xu, 2019; Wang et al., 2018; Ling et al., 2019), employees' dissatisfaction with their supervisors (Ai-Hua et al., 2018), and trust in supervisors (Nienaber et al., 2015).

In contrast, within the domain of job perceptions and beliefs, factors such as organizational cynicism (Kim et al., 2019), psychological contract breach and violations, workplace ostracism, perceptions of organizational politics, and job autonomy have been found to positively influence employee silence (Hao et al., 2022). Conversely, organizational identification (Ali Arain et al., 2018), psychological safety, organizational justice (He et al., 2018), and social support (Hobfoll, 2001) have demonstrated negative effects on employee silence. Regarding individual dispositions, empirical findings support the influence of personality traits encompassed by the Big Five model (Judge et al., 2008), assertiveness, proactive personality, power distance orientation, and both positive and negative affect on employee silence (Hao et al., 2022).

Employee silence has been found to impact a variety of outcomes related to employee well-being, including burnout and stress (Knoll et al., 2019), as well as job attitudes such as organizational commitment (Aruoren & Isiaka, 2023; Dedahanov & Rhee, 2015), job satisfaction, turnover intention (Elçi et al., 2014), work engagement (Pirzada et al., 2020), employee effectiveness (Francis-Odii et al., 2020), and leader's competency (Okunzi, 2016). Additionally, employee silence influences task performance (Jalilian & Batmani, 2015), organizational citizenship behavior, innovative behavior (Chou & Change, 2021), job withdrawal and deviant behavior (Dong & Chung, 2021) and organizational performance (Dwomoh, 2012).

2.2 Antecedents for employee silence behavior

2.2.1 Employee's social loafing and employee silence behavior

Social loafing occurs when individuals put forth less effort than they are capable of, either consciously or unconsciously, often due to diminished personal accountability or unclear supervision within a team setting (Liden et al., 2004). This phenomenon was first observed and documented by the French agronomic engineer Maximilien Ringelmann in 1913 (Simms & Nichols, 2014). Prior research suggests that social loafing is shaped by multiple factors, such as task interdependence, task visibility, distributive justice, work group size, group cohesiveness, and perceived coworker loafing (Liden et al., 2004), in addition to the reward system, individual perceptions of competition, and team members' attitudes (Stark et al., 2007).

Social loafing is a negative behavior that reflects low levels of employee motivation, participation, and organizational commitment (Khan et al., 2020). A low level of organizational commitment encompasses reduced

affective, continuance and normative commitment. And a low level of organizational identification among employees contributes to an increase in silence behavior (Hao et al., 2022). Employees with high levels of social loafing tend to be indifferent to organizational issues and avoid behaviors such as expressing new ideas, offering constructive criticism, or suggesting improvements. Unless they perceive the situation as essential, they are more likely to remain silent, as doing so is seen as a means of maintaining a quiescent and less stressful work environment. Therefore, social loafing can be considered one of the underlying causes of silence behavior in the workplace.

According to the previous study by Van Dyne et al. (2003), the primary motivation for employees to withhold new ideas, information, or opinions is based on a passive and disengaged motive. This leads to acquiescent silence as well as proactive forms of silence, including fear-based, defensive silence, and, on the other hand, other-oriented and cooperative, which called prosocial silence. Nevertheless, in their work, acquiescent silence is described as the act of withholding opinions due to a lack of self-confidence and a sense of powerlessness, resulting from a resigned attitude.

Accordingly, it is argued that silence resulting from social loafing should also be considered, and this study proposes the following hypothesis.

Hypothesis 1a: Employee's social loafing will be positively related to silence behavior.

2.2.2 Group conflict and employee silence behavior

The main basis for employees expressing new ideas and opinions at workplace is often explained in relation to their psychological safety, which, in turn, forms the basis for the opposite concept—employee silence (Morrison, 2023). When employees perceive psychological safety, they tend to actively engage in interpersonal interactions at work and seek feedback from management, which is associated with a decreased sense of risk. In these circumstances, the cost-benefit analysis of expressing opinions becomes less significant. However, group conflicts can undermine an employee's sense of psychological safety, triggering a self-protective instinct. These conflicts often stem from misunderstandings and a perception of injustice. Perceived unfairness creates conditions that lead employees to refrain from expressing their opinions.

Silence may arise from the avoidance of expressing opinions, often due to conflicts of interest that contradict an employee's perceptions. In a group, individuals are constantly surrounded by conflicting interests, opinions, and methods of expression, which is shaped by each person's unique interests and perspectives (Anderson, 2018). Human nature tends to avoid conflict and risk. To a certain extent, conflict, when expressed constructively, can foster creativity and innovative ideas. However, as these conflicts escalate, they trigger self-protective behaviors in employees, leading them to shift toward silence. In a group communication environment, particularly during conflict, employees may perceive voicing their opinions as risky or ineffective (Knoll & van Dick, 2013).

Factors such as leadership and interpersonal relationships, workplace climate, and organizational culture have been repeatedly identified in previous research as influencing employees' willingness to express their opinions and their tendency to remain silent (Morrison, 2014; 2023). When employees feel respected by their colleagues, experience strong trust, and perceive positive emotions, it enhances their sense of psychological safety and increases the likelihood of expressing their opinions (Ng et al., 2021). Additionally, employees feel a sense of responsibility for making creative changes when they receive support from their colleagues (Xie et al., 2015). Support and involvement from leadership and coworkers foster psychological safety, creating an environment where employees feel secure in expressing their opinions (Curcuruto et al., 2020; Subhakaran & Dyaram, 2018).

Group conflict is identified as one of the factors that contribute to increased employee silence, and the following hypothesis is proposed.

Hypothesis 1b: Group conflict will be positively related to employee's silence behavior.

2.2.3 Development experience and employee silence behavior

Developmental experiences are opportunities like training, mentoring, job rotations, and challenging tasks that help employees grow their skills, build confidence, and feel safer and more capable at work. Such opportunities strengthen employees' confidence in themselves and their belief that their views matter, encouraging them to be more open and more willing to share their insights, ideas, and knowledge (Detert & Edmondson, 2011). Likewise, a sense of support from the organization fosters an experience of human resource development, which increases employees' organizational commitment. This enhances employees' intrinsic motivation, leading to increased

creativity, the proposal of new ideas, and the successful implementation of those ideas.

When employees truly engage in developmental opportunities, it leads to improved skills and greater competence, which positively impacts their job performance. This process allows them to build upon their existing knowledge, creating a basis for fresh ideas and innovative results (Ibrahim et al., 2016). The results of employee development activities, driven by organizational training needs, are aligned with both the employee's core responsibilities on their job and the organization's strategic objectives. This alignment promotes employee collaboration and creativity through the sharing of new ideas and opinions suggestions and knowledge sharing for critical improvement and change.

Consequently, this enhances the employee's organizational identity, driving them to express themselves more openly. Moreover, the sense of developmental experience facilitated through the organization amplifies the employee's sense of responsibility. According to social exchange theory (Blau, 1964), this relationship can be seen as employees responding to the support they get from their organization by showing helpful behaviors, committing to ongoing learning, and taking proactive actions. Based on these insights, the following hypothesis is proposed.

Hypothesis 2a: Development experience will be negatively related to employee's silence behavior.

2.2.4 Leader-member exchange and employee silence behavior

Leader-member exchange (LMX) describes the evolving trust and relationship quality between a leader and their subordinate over time (Xu et al., 2015). When this relationship is strong, it significantly boosts employee motivation by offering psychological support that encourages workers to fully engage, sharing their ideas, feedback, and taking initiative to help the organization succeed. Additionally, a positive LMX fosters emotional and job-related safety, increases employees' commitment and sense of belonging, and builds their self-esteem. It also reduces the fears and uncertainties that often stop employees from expressing their views or offering new ideas (An et al., 2023).

Workgroups with poor relationships with their supervisors are more likely to experience heightened work-related stress and managerial strain. Prior research efforts on employee silence have emphasized the significant influence of the work environment—particularly leadership—on silence behavior (Morrison, 2023). Previous research has demonstrated that abusive leadership contributes to employees' emotional exhaustion (Sridadi et al., 2022). Furthermore, a study by Sessions, Nahrgang, Newton, and Chamberlin (2020) found that supervisory support can reduce emotional exhaustion, which in turn promotes greater team-level voice behavior, as reflected in the average voice levels among team members.

When the LMX quality is high, it reflects strong trust, and the employee perceives that the leader understands, values, and provides feedback on their potential, knowledge, and skills, as well as listens to their suggestions. In such situations, employees are more likely to express their opinions openly and freely, without conducting cost-benefit analyses or considering risks. In contrast, research suggests that valuable and effective suggestions from employees contribute to improving the LMX (Liang & Yeh, 2019). Furthermore, when leadership fosters an environment where employee suggestions are heard and focused on rationale and outcomes, rather than through filters, stereotypes, or preconceived negative biases, it encourages employees to avoid silence (Wilkinson & Fay, 2011; Wilkinson et al., 2018). These theoretical foundations lead to the formulation of the following hypothesis.

Hypothesis 2b: Leader-member exchange will be negatively related to employee's silence behavior.

2.3 Moderation effects of leader-member exchange

The strength of the relationship between leaders and their team members, known as leader-member exchange (LMX), helps lessen the negative impact that conflicts within groups can have on employees choosing to remain silent. An employee's choice to share or withhold opinions is heavily influenced by how safe they feel psychologically at work. When employees experience lower levels of risk and uncertainty regarding the potential outcomes of their actions, they are more likely to act with confidence, which in turn facilitates their willingness to express and implement their ideas and opinions (Kassandrinou et al., 2023; Pacheco et al., 2015).

Research examining the antecedents influencing employee silence has frequently focused on the role of social relationships. Notably, the quality of interactions between employees and their supervisors, as well as among colleagues, significantly impacts whether employees' voices are heard and acted upon (Curcuruto et al., 2020). While employee silence may appear to be an individual choice, it is fundamentally shaped by social dynamics. Specifically, leadership plays a critical role in fostering psychological safety, often to a greater extent than peers

(Mao & Tian, 2022). This is due to the leader's pivotal role in evaluating employee performance, facilitating career advancement, assigning tasks, and shaping employees' organizational identities. Prior research on employee silence suggests that leadership style, behaviors, and personal traits can either facilitate or constrain employees' willingness to voice their opinions.

When employees feel valued, understood, and supported by management, it strengthens their self-confidence and self-efficacy and fosters greater organizational commitment and gratitude towards the organization. Even when employees experience interpersonal conflicts or a negative work atmosphere due to group dynamics, a positive and supportive relationship with management can significantly increase the likelihood of their ideas and suggestions being heard and implemented. Establishing trust with leadership, senior colleagues, and skilled workers helps employees maintain their confidence and sense of psychological safety, enabling them to express their thoughts, concerns, and new ideas despite potential conflicts or misunderstandings.

Research also identifies several factors, such as self-confidence, gratitude, personal identity, role models, self-esteem, expectations, and meaningful work, that connect leadership with employee willingness to speak up (Morrison, 2023). Supportive leadership behaviors, specifically, enhance employees' sense of responsibility, especially for those with high self-esteem. Feedback from leaders is crucial for encouraging employees to share important information, questions, and suggestions related to their jobs and the organization (Sijbom et al., 2015).

Drawing on the foregoing arguments, it is posited that the quality of leader-member exchange serves as a mediator between group conflict and employee silence, thereby mitigating the adverse effects of group conflict on silence. The following hypothesis is proposed on this premise.

Hypothesis 3a: Leader-member exchange moderates the positive relationship between group conflict and employee's silence behavior.

When employees experience a strong leader-member exchange (LMX), they are more inclined to accept their leader's authority and even tolerate some negative conduct, while also feeling a heightened sense of accountability (Urbach & Fay, 2021). Research has indicated that factors like confidence, gratitude, a sense of identity, role modeling, self-esteem, expectations, and the meaningfulness of one's work serve as key links between leadership actions and employees' willingness to speak up (Morrison, 2023).

Social loafing tends to decrease when they are given more frequent involvement in interactions with their leaders and when the leader assigns them tasks that are crucial for their responsibility and career growth. The reasons behind employee passivity often stem from a reduced sense of meaningfulness at work, lower intrinsic motivation, and disengagement from tasks. However, when leaders place trust in employees and provide opportunities for growth and development, this loafing is likely to decrease.

Employees who exhibit social loafing tend to express their voices primarily on issues they perceive as important and relevant to their work or the organization's circumstances. This behavior is likely to change when they receive support from their leadership, which encourages them to voice their voices more frequently. Employees with strong relationships with their leaders, feeling a sense of psychological safety, are more inclined to offer suggestions for improvement or even constructive criticism. For passive employees, this environment of psychological safety can serve as a catalyst for re-engaging and expressing their perceptions.

Therefore, the leader-member exchange is hypothesized to play a mediating role between employee disengagement and silence, mitigating the negative impact of disengagement. Building on this reasoning, the following hypothesis is proposed.

Hypothesis 3b: Leader-member exchange moderates the positive relationship between employee's social loafing and silence behavior.

2.4 Moderation effects of developmental experience

Employees' choices to speak up or remain silent are often shaped by feelings of appreciation and loyalty toward their organization, which motivate their engagement. When employees perceive that the organization is contributing to their development and undergoing continuous, positive transformation, they experience heightened levels of acknowledgement. Satisfaction with training programs correlates with skill improvement and more positive attitudes (Cao & Hamori, 2023), helping to reduce tendencies toward social loafing. Consequently, such factors create a potential avenue for overcoming social loafing.

Indirectly, an employee's role and responsibilities can enhance their sense of workload and accountability, providing opportunities for growth and development, which positively influence their overall work experience.

The concept of developmental experiences is explored within the theoretical fields of human resource management and organizational behavior. Employees' perception of development contributes to their sense of work value, subsequently fostering affective, normative, and continuance commitment, persistence, and a responsible attitude toward their tasks (Gutierrez et al., 2012). Moreover, developmental experiences are perceived more acutely through direct support from leadership and senior management (Cao & Hamori, 2023). In this regard, employees with high developmental experiences are more likely to avoid social loafing, heighten their sense of responsibility, and develop a affective commitment to the organization, leading them to express their new ideas, questions and offer solutions, rather than silently overlooking problems.

Therefore, the developmental experiences of employees are proposed as a key moderating factor in awakening social loafing and encouraging them to overcome silence, leading to the following hypothesis.

Hypothesis 4a: Development experience moderates the positive relationship between employee's social loafing and silence behavior.

Even in the presence of conflict within the employee's immediate workgroup, developmental experiences play a pivotal role in strengthening employees' sense of responsibility. Such experiences encourage employees to voice new ideas, concerns, and opinions regarding their work or the organization, facilitating an open exchange of thoughts that would otherwise withhold voice. Developmental experiences help shape a strong sense of belonging to the organization, which enables employees to stay focused on shared values and goals even in the presence of group disagreements or tension, thereby deepening their organizational commitment. This commitment is expressed through a reciprocal perception of organizational support, which, via a sense of felt obligation, reduces employees' propensity to remain silent in the face of adversity (Schultz & Hernes, 2013). Consequently, an employee's alignment with the organization, which is shaped by their developmental experiences, steers their focus away from interpersonal conflicts or divergent viewpoints and instead fosters a sense of internal motivation driven by their organizational identification. This alignment facilitates their engagement with the organization's goals and strategies, promotes support for collective objectives, enhances positivity, and directs their efforts toward problem-solving and resolution.

This study posits that developmental experiences serve as a moderator, reducing the positive influence between group conflict and employee silence. Based on this reasoning, the following hypothesis is proposed.

Hypothesis 4b: Development experience moderates the positive relationship between group conflict and employee's silence behavior.

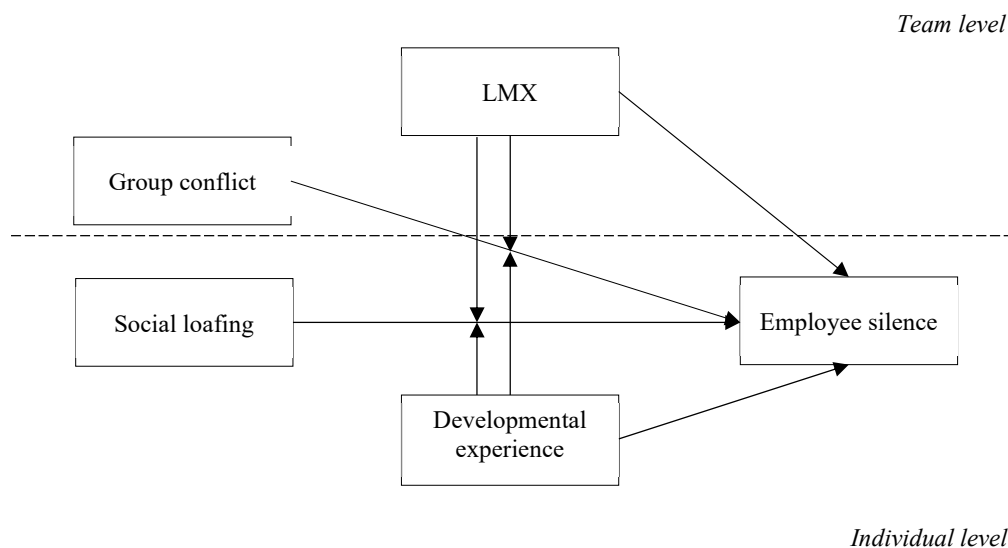


Figure 1. Theoretical model

3. Methods

3.1 Data and data collection

Data for hypothesis testing were collected from all 129 employees of the electrical division of a mining company,

resulting in a 100% response rate. The average age of participants was 38 years, with a range from 22 to 59. The sample comprised 90 male (69.8%) and 39 female (30.2%) respondents. Approximately 31% (n = 40) of employees had tenure of five years or less, and nearly half of the respondents (49%) had worked for the organization for 10 years or less, indicating a workforce largely composed of relatively young and early-career employees. Descriptive statistics for the study variables are presented in Table 1.

3.2 Measures

Employee silence: Employee silence was measured using a 12-item scale developed by Knoll and van Dick (2013), which captures four dimensions: quiescent silence, acquiescent silence, prosocial silence, and opportunistic silence. Employees responded on a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). Based on results from an exploratory factor analysis, four items with low factor loadings were removed. The final scale score was computed by averaging the remaining items. The reliability of the scale was high (Cronbach's $\alpha = .928$).

Table 1. Descriptive statistics

Variables	N	Mean	SD	Min	Max
employee silence	129	2.23	0.74	1	4.7
leader-member exchange	129	3.28	0.84	1	5
developmental experience	129	3.23	0.80	1	5
group conflict	129	2.40	0.86	1	4.9
social loafing	129	1.51	0.57	1	3
gender	129	1.30	0.46	1	2
tenure	129	2.83	1.69	1	7
education	129	3.87	0.90	1	5

Social loafing: Supervisors rated their subordinates' job disengagement using a 10-item scale adapted from George (1992). Items included statements such as "Defers responsibilities he or she should assume to others," and were rated on a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). Mean scores were computed across all items to form the disengagement measure. The scale demonstrated excellent internal consistency (Cronbach's $\alpha = .951$).

Group conflict: Group conflict was measured using a 12-item scale developed by Bendersky and Hays (2012). Sample items include "My team members experienced conflict of ideas" and "My team members disagreed about the relative value of members' contributions." Employees rated each item on a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). The mean of the items was computed to create the group conflict score. The scale demonstrated high internal consistency (Cronbach's $\alpha = .946$).

Developmental experience: A 4-item scale developed by Wayne et al. (1997) was used to assess developmental experiences. Sample items included, "In the positions that I have held at my company, I have often been assigned projects that have enabled me to develop and strengthen new skills," and "In the positions that I have held at my company, I have often been given additional challenging assignments." Employees rated each item on a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). The mean of the responses was calculated and used for analysis. The scale demonstrated acceptable internal consistency with a Cronbach's alpha of 0.760.

Leader-member exchange : LMX was assessed using a 7-item scale developed by Wayne et al. (1997). Employees evaluated the quality of their relationship with their immediate supervisor on a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). Sample items include "My working relationship with my manager is effective." The overall LMX score was calculated by averaging responses across all items. The scale demonstrated high internal consistency (Cronbach's $\alpha = .912$).

Control variables: To strengthen the validity of the hypothesized relationships, demographic variables

such as gender, years of service, and educational level were included as control variables in the analysis. Demographic data for the participants were obtained from the Human resources department of the company, which served as the study's organizational context.

4. Results

To assess the adequacy of the data collected through the survey for exploratory factor analysis (EFA), the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy and Bartlett's test of sphericity were performed. The KMO value was 0.846, indicating a meritorious level of sampling adequacy, and Bartlett's test was statistically significant ($p < .01$). These results suggest that the data are suitable for factor analysis (see Table 2).

Table 2. KMO – Bartlett's test

KMO Measure of Sampling Adequacy		0.846
Bartlett's Test of Sphericity	Approx. Chi-Square	4433.592
	<i>df</i>	741
	<i>sig</i>	0.000

Table 3. Results of exploratory factor analysis (EFA) and reliability analysis

Variables	Indicator	1	2	3	4	5	Cronbach's alpha
Silence	SI2	0.148	0.119	0.748	-0.170	-0.124	0.928
	SI3	0.062	0.054	0.844	-0.051	-0.020	
	SI4	0.123	0.148	0.804	-0.026	-0.046	
	SI5	0.121	0.128	0.780	-0.018	-0.016	
	SI7	0.096	0.048	0.760	-0.205	-0.016	
	SI8	0.112	0.157	0.812	-0.027	-0.088	
	SI9	0.113	0.060	0.836	-0.015	0.054	
	SI10	0.282	-0.027	0.787	-0.060	-0.105	
LMX	LM1	0.131	0.088	-0.213	0.625	-0.132	0.912
	LM2	-0.095	0.035	0.035	0.815	0.139	
	LM3	-0.238	-0.035	-0.191	0.814	0.097	
	LM4	-0.172	-0.104	-0.072	0.878	0.091	
	LM5	-0.026	-0.141	-0.075	0.752	0.002	
	LM6	-0.326	0.062	-0.020	0.763	0.169	
	LM7	-0.233	0.055	0.002	0.860	0.139	
Developmental experience	EX2	-0.114	0.071	-0.141	0.531	0.643	0.760
	EX3	0.048	0.061	-0.224	0.306	0.760	
Group conflict	GC1	0.741	0.010	-0.049	-0.073	-0.014	0.946
	GC2	0.748	0.067	-0.017	0.091	-0.110	
	GC3	0.779	0.071	0.206	-0.089	-0.241	
	GC4	0.792	0.042	0.176	-0.092	-0.032	
	GC5	0.731	0.154	0.160	-0.264	0.010	
	GC6	0.810	0.129	0.119	-0.247	-0.030	
	GC7	0.819	0.091	0.216	-0.122	0.116	
	GC8	0.813	0.027	0.181	-0.064	0.208	
	GC9	0.759	-0.023	0.119	-0.083	0.125	
	GC10	0.790	-0.051	0.090	-0.066	-0.024	
	GC11	0.756	0.011	-0.017	-0.062	-0.018	
	GC12	0.764	0.016	0.236	-0.084	-0.147	
Social loafing	SL1	-0.012	0.837	0.049	-0.102	0.208	0.951
	SL2	0.105	0.885	0.111	0.111	-0.106	
	SL3	-0.010	0.831	0.100	-0.133	0.028	
	SL4	0.073	0.848	0.113	0.087	-0.136	
	SL5	0.125	0.840	0.104	0.144	-0.198	
	SL6	-0.079	0.712	0.049	-0.073	0.126	

	SL7	0.106	0.810	0.083	-0.079	-0.084
	SL8	0.047	0.906	0.065	-0.003	0.048
	SL9	0.059	0.888	0.021	-0.022	0.083
	SL10	0.037	0.797	0.071	0.047	0.088
Rotation Sums of Squared Loading	Total	7.736	7.216	5.588	5.115	1.454
	% of Variance	19.837	18.503	14.328	13.116	3.728
	Cumulative %	19.837	38.341	52.669	65.785	69.513

During the factor analysis, several items associated with the five constructs in the research model either failed to load significantly on their intended factors or did not meet the required threshold for factor loadings. As a result, six items (SI1, SI6, SI11, SI12, EX1, and EX4) were removed, and the exploratory factor analysis was re-conducted. The revised analysis showed that the remaining items loaded appropriately onto their respective factors, collectively explaining 69.51% of the total variance. All factor loadings exceeded the acceptable threshold of 0.60, and the internal consistency of each factor, as measured by Cronbach's alpha, was above 0.70, indicating satisfactory reliability (see Table 3).

Table 4 displays the results of the correlation analysis for all the variables used in the study. The findings reveal that employee silence is significantly and negatively correlated with LMX ($r = -0.207, p < 0.05$) and developmental experience ($r = -0.267, p < 0.01$). Conversely, employee silence is positively correlated with group conflict ($r = 0.319, p < 0.01$) and social loafing ($r = 0.205, p < 0.05$), with all correlations showing statistical significance. The forms of employee silence—quiescent silence, prosocial silence, opportunistic silence, and acquiescent silence—were found to have statistically significant correlations in the same direction with the independent variables. Only the relationship between LMX and prosocial silence was not statistically significant.

Table 5 presents the results of testing the hypotheses in the study. Model 1 examined the effects of the control variables separately, revealing no significant relationship with employee silence. In Model 2, Hypotheses 1a, 1b, and 2b were tested, while Hypothesis 2a was further analyzed in Model 3 due to the strong correlation between LMX and developmental experience ($r = 0.69, p < 0.05$). The results confirmed the expected direct effects of the four key independent variables. Specifically, LMX ($\beta = -0.126, p < 0.05$) and developmental experience ($\beta = -0.251, p < 0.01$) showed a negative impact, while group conflict ($\beta = 0.226, p < 0.01$) and social loafing ($\beta = 0.245, p < 0.05$) exhibited positive effects. These findings fully support Hypotheses 1 and 2.

Models 4-7 examine whether the factors that increase employee silence can be neutralized by those that reduce it, as hypothesized in Hypotheses 3 and 4. The results indicate that LMX reduces silence associated with group conflict ($\beta = 0.315, p < 0.01$), supporting Hypothesis 3a. However, LMX has a significant effect on silence arising from employee disengagement ($\beta = 0.268, p < 0.05$), thus Hypothesis 3b is supported. Finally, Models 6 and 7 test Hypothesis 4, investigating whether developmental experience moderates the positive effects of group conflict ($\beta = 0.129$) and social loafing ($\beta = 0.202$) on employee silence. The results show statistically not significant evidence that developmental experience plays a moderating role, confirming the hypothesized relationship.

Table 4. Results of correlation analysis

Variables	1	2	3	4	5	6	7
1 silence							
2 leader-member exchange	-.207*						
3 developmental experience	-.267**	.516**					
4 group conflict	.319**	-.296**	-.140				
5 social loafing	.205*	-.018	.052	.129			
6 gender	.056	.042	.073	.083	-.022		
7 tenure	.047	-.045	.029	.027	.099	-.044	
8 education	-.003	-.119	.058	.020	.183*	.097	.006

Note: * $p < 0.05$; ** $p < 0.01$

Furthermore, to retest the hypotheses proposed in the study, structural equation modeling (SEM) was employed, and the goodness-of-fit of the measurement model was assessed using confirmatory factor analysis (CFA). During the CFA process, several items were removed due to their negative impact on model fit. Specifically, indicators of

employee silence (SI2, SI5), group conflict (GC2, GC6, GC7, GC9), and employee disengagement (SL5, SL8) were excluded. The results of the analysis demonstrated acceptable model fit: $\chi^2/df = 672.092/424 = 1.585$ (less than 3), CFI = 0.912, TLI = 0.903 (both above 0.90), and RMSEA = 0.068 (below 0.07), confirming that the measurement model exhibited an adequate level of fit (see Table 6).

Based on the results of the confirmatory factor analysis, path analysis was conducted using the structural model in AMOS to test the hypotheses proposed in the study. Since non-significant indicators for each construct had already been removed during the confirmatory factor analysis, the structural model retained the same level of model fit. The analysis results confirmed an adequate fit for the structural model: $\chi^2/df = 672.092/424 = 1.585$, CFI = 0.912, TLI = 0.903, and RMSEA = 0.068. These fit indices indicate that the structural model met the recommended thresholds and demonstrated acceptable overall model fit.

Table 5. Regression results on employee silence

Variables	Model1	Model2	Model3	Model4	Model5	Model6	Model7
constant	1.927*** (0.367)	1.666*** (0.519)	2.664*** (0.423)	4.251*** (0.819)	3.663*** (0.823)	2.966*** (0.798)	3.279*** (0.779)
gender	0.098 (0.150)	0.086 (0.141)	0.130 (0.145)	-0.010 (0.138)	0.097 (0.144)	0.072 (0.140)	0.129 (0.142)
tenure	0.023 (0.041)	0.008 (0.038)	0.027 (0.039)	0.029 (0.037)	0.009 (0.039)	0.030 (0.038)	0.020 (0.038)
education	-0.007 (0.077)	-0.053 (0.074)	0.005 (0.074)	-0.021 (0.070)	-0.052 (0.075)	0.017 (0.072)	-0.009 (0.075)
<i>antecedents</i>							
social loafing		0.245** (0.117)			-0.584 (0.466)		-0.359 (0.493)
group conflict		0.226*** (0.080)		-0.761** (0.283)		-0.181 (0.312)	
LMX		-0.126* (0.081)		-0.826*** (0.207)	-0.600** (0.222)		
developmental experience DE			-0.251*** (0.079)			-0.511** (0.222)	-0.558* (0.229)
<i>interaction effects</i>							
group conflict * LMX				0.312*** (0.084)			
social loafing * LMX					0.268* (0.138)		
group conflict * DE						0.129 (0.090)	
social loafing * DE							0.202 (0.146)
observations <i>N</i>	129	129	129	129	129	129	129
adjusted R ²	-0.018	0.108	0.051	0.169	0.078	0.130	0.100
F	0.235	3.585***	2.718**	5.345***	2.800**	4.196***	3.372***

Note: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table 6. Results of confirmatory factor analysis (CFA)

Variables	CFA before	CFA after	Name	Estimate	Standardized Regression Weights	C.R	<i>p</i>
Silence	8	6	SI3	0.861	0.084	10.291	***
			SI4	0.979	0.104	9.432	***
			SI7	0.854	0.082	10.471	***
			SI8	0.960	0.078	12.372	***
			SI9	1.000			
			SI10	0.859	0.078	11.057	***
LMX	7	7	LM1	0.519	0.088	5.900	***
			LM2	0.909	0.081	11.273	***
			LM3	0.896	0.066	13.653	***
			LM4	0.970	0.061	15.835	***
			LM5	0.841	0.089	9.473	***
			LM6	0.891	0.073	12.177	***
			LM7	1.000			
Developmental experience	2	2	EX2	1.000			
			EX3	0.677	0.119	5.677	***
Group conflict	12	8	GC1	0.775	0.095	8.144	***
			GC3	0.903	0.082	10.977	***
			GC4	1.000			
			GC5	0.821	0.081	10.159	***
			GC8	0.860	0.086	9.982	***
			GC10	0.881	0.087	10.166	***
			GC11	0.774	0.086	9.010	***
			GC12	0.999	0.088	11.303	***
Social loafing	10	8	SL1	0.621	0.051	12.280	***
			SL2	1.000			
			SL3	0.573	0.047	12.285	***
			SL4	0.887	0.070	12.629	***
			SL6	0.640	0.073	8.811	***
			SL7	0.840	0.073	11.530	***
			SL9	0.944	0.071	13.218	***
			SL10	0.873	0.078	11.128	***

$$\chi^2 / df = 672.092 / 424 = 1.585, p = 0.000, RMSEA = 0.068, CFI = 0.912, TLI = 0.903$$

Regarding the hypotheses proposed in the study, the results revealed that both social loafing ($\beta = 0.282, p = 0.057$) and group conflict ($\beta = 0.309, p = 0.002$) had a statistically significant positive effect on employee silence. Thus, Hypothesis 1a and Hypothesis 1b were supported. In addition, employee developmental experience was found to have a statistically significant negative effect on employee silence ($\beta = -0.162, p = 0.096$), supporting Hypothesis 2a. However, the influence of leader-member exchange on employee silence was not statistically significant, and therefore, Hypothesis 2b was not supported (see Table 7).

In addition, the structural equation model was used to examine the moderating roles of LMX and developmental experience in the relationships between social loafing and employee silence, as well as between group conflict and employee silence. To conduct the moderation analysis, the dataset was divided into high and low groups based on the mean values of the moderating variables (LMX and developmental experience), excluding cases that fell near the mean.

Concerning the moderating effect of leader-member exchange on the relationships between social loafing and employee silence, as well as between group conflict and employee silence, statistically significant effects were observed in the high-LMX group ($p = .004; p < .001$), whereas no significant effects were found in the low-LMX group ($p = .77; p = .88$). These results support Hypotheses 3a and 3b, suggesting that higher levels of LMX strengthen the positive relationships between the independent variables and employee silence, indicating a significant moderating effect.

Regarding the moderating effect of developmental experience on the relationship between employee disengagement and employee silence, no statistically significant effects were observed in either the high or low developmental experience groups ($p = .312$; $p = .415$). Therefore, Hypothesis 4a was not supported. In contrast, although the moderating effect of developmental experience on the relationship between group conflict and employee silence was statistically significant in both the high and low developmental experience groups ($p = .011$; $p = .067$), the comparison of group parameters did not meet the required threshold (i.e., a critical ratio greater than ± 1.96), with a parameter difference of $PPC = 0.936$. As a result, Hypothesis 4b was also not supported (see Table 8).

Table 7. Path coefficients and final model results

Hypothesis	Path	Estimate	S. E.	C. R.	p	Results
H1a	SL \rightarrow SI	0.282	0.149	1.900	0.057	Supported
H1b	GC \rightarrow SI	0.309	0.098	3.139	0.002	Supported
H2a	DE \rightarrow SI	-0.162	0.097	-1.665	0.096	Supported
H2b	LM \rightarrow SI	0.099	0.179	0.556	0.578	Rejected

$$X^2 / df = 672.092 / 424 = 1.585, p = 0.000, RMSEA = 0.068, CFI = 0.912, TLI = 0.903$$

Table 8. Results of moderation effects

Hypothesis	IV	DV	MV	High group			Low group			Pairwise Parameter Comparison	Result
				Estimate	C.R.	p	Estimate	C.R.	p		
H3a	SL	SI	LM	0.888	2.873	0.004	0.061	0.292	0.770	2.212	Support
H3b	GC			0.844	3.382	0.000	0.017	0.150	0.880	3.009	Support
H4a	SL		DE	0.187	1.010	0.312	0.186	0.815	0.415	0.004	Reject
H4b	GC			0.431	2.533	0.011	0.233	1.834	0.067	0.936	Reject

5. Conclusion and discussion

This study aimed to identify factors that reduce employee silence by examining its antecedents at both individual and team levels. At the individual level, it focused on social loafing and developmental experience; at the team level, it examined leader–member exchange and group conflict, representing an integrative and relatively novel approach in this domain. These variables were hypothesized to exert both positive and negative effects on employee silence. In addition to testing direct effects, a theoretical model was proposed to assess whether positive variables could buffer the negative ones. Empirical results confirmed all four direct effects. Moderation analysis revealed that LMX significantly moderated the positive relationships between social loafing and group conflict with employee silence, indicating a buffering effect in both cases. However, developmental experience did not significantly moderate these relationships.

This study makes three key theoretical contributions. First, it expands the relatively underexplored area of individual dispositions in employee silence research. While previous studies have mainly focused on traits or affective states (Morrison, 2023), this study introduces social loafing as a novel construct that captures disengagement within teams and operates across individual and group levels. It also highlights developmental experience as an intrinsic motivator, grounded in social exchange theory, where feelings of gratitude and responsibility promote voice behavior.

Second, at the team level, the study identifies group conflict as a significant antecedent of employee silence, offering a more contextually grounded understanding of organizational dynamics. Findings indicate that employees are more likely to remain silent in conflict situations, unless they experience high-quality LMX, which also helps mitigate the effects of social loafing. Third, while developmental experience was hypothesized to moderate the negative effects of social loafing and group conflict, it did not show a significant effect. This suggests that intrinsic motivation alone may be insufficient to reduce silence in adverse environments. Instead, external factors, such as psychological safety fostered by leadership, may play a more decisive role.

This study also offers several practical implications. First, to encourage employee voice and open expression, organizations should strengthen leader-member exchange and proactively address intragroup conflict. A supportive relational climate is essential for fostering psychological safety and participation. Second, organizations must recognize and reduce social loafing through performance and reward systems that emphasize both group results and individual contributions, thereby enhancing accountability. Third, to mitigate both social loafing and group conflict, organizations should invest in developing the leadership, communication, and collaboration skills of managers at all levels, thereby ensuring their ability to align, motivate, and engage teams effectively.

Several limitations should be noted. The use of cross-sectional data from a single sector and a relatively small sample size ($n = 129$) limits the generalizability and statistical power of the findings. Future research should address these limitations by employing larger, more diverse samples and adopting longitudinal or cross-industry designs to capture a broader perspective. Methodologically, the use of multilevel modeling could enhance the analysis of nested data (e.g., individuals within teams), allowing for more accurate cross-level insights. Further exploration of individual-level dispositions and moderating variables is also recommended to better understand how negative antecedents of silence can be offset. A more nuanced grasp of these dynamics may inform targeted interventions that promote open communication and reduce silence in organizational settings.

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