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The influence of communication climate, organizational identification, and burnout on real estate agents' turnover intention

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This study investigated the factors that affect the turnover intention of real estate agents by considering the impact of individual-level factors such as job stress, burnout, and salary level and team-level factors such as communication climate and organizational recognition. The parameters were evaluated using a hierarchical linear moderated mediation model. The survey subjects were real estate agents in Tainan City. A total of 870 questionnaires were distributed to 87 real estate agencies, and 615 questionnaires from 77 branches were collected. The questionnaires from four branches were excluded, as fewer than two questionnaires were collected, and an additional 57 questionnaires with missing responses were also excluded. A total of 558 questionnaires from 73 branches were included in the study. The overall response rate of questionnaires was 64.1%. The results indicated that the greater a real estate agent's awareness of the communication climate, the higher the likelihood of the real estate agent receiving recognition from their organization, while a higher salary level indicated a lower level of turnover intention. A greater understanding of job stress indicated a higher risk of burnout. The communication climate had an impact on burnout and turnover intention, while organizational recognition mediated the impact of communication climate as it pertained to turnover intention. The results showed that the level of burnout mediated the impact of job stress and turnover intention.

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Introduction

Economic conditions are closely associated with real estate businesses. During a recession, real estate brokers have high a turnover rate, which greatly affects the stable growth of the real estate brokerage industry. A moderate flow of talent promotes healthy competition, while an excessive flow of talent leads to intra-organizational imbalance and disarray. Therefore, the turnover intention of real estate brokers has become a topic of academic and practical interest.

Since individual data are nested in an organization, an organization's effects on an individual comprise contextual effects, cross-level interactions, multi-level mediation, and moderating effects (Wen and Chiou, 2009). Therefore, when examining the factors that impact turnover intention, the structural relationship between organizational and individual attributes must be considered. On an organizational level, new brokers must undergo training. Moreover, they often are subject to peak resignation periods as, due to fierce competition, job stress varies across real estate offices, and many newcomers choose to resign. Compared to experienced brokers, newcomers still need to develop their professional knowledge and skills through organizational training. Consequently, brokers of different rankings and with various demands can continue their in-service education, prolong their careers, and assume different responsibilities. Mehra and Nickerson (2019) studied the communication preferences and communication climate across different generations of employees, from which they suggested that supervisors should replace their bureaucratic mindsets with constructive and positive means of communication to ensure more effective decision-making and problem-solving processes. An organization's communication norms can be established by strengthening members' organizational identification by facilitating a communication climate that is characterized by openness and active participation (Kniffin and Wilson, 2005). Stephens and Dailey (2012) observed that newcomers have low levels of organizational identification before they enter an organization, but these levels increase after they undergo training, with those who do not undergo training having a significantly lower level of organizational identification. Neill et al. (2019) explored how communication climate and organizational identification affect change and found that an open and participative communication climate has a directly positive impact on employees' affective commitment and behavioral support for change. Thus, open and participative communication strengthens employees' organizational identification and influences them to respond positively to change. Employees who identify with their organization often believe in the intrinsic value of changes and are more likely to support and cooperate with the implementation of a change initiative, thereby strengthening their bond with their organization. In addition, employees with high levels of work motivation have lower turnover intention (Wegge et al. 2006). Afshari et al. (2019) suggested that employees identify with their organizations' images through organizational identification and by developing an excellent work ethic. Their results also showed that developments in organizational identification, job title, and organizational commitment are positively correlated with each other.

In terms of personal attributes, real estate brokers' high turnover rate is closely correlated with the characteristics of the real estate brokerage industry. In addition to meeting significant performance demands, brokers are accustomed to working overtime to meet with clients. Individuals perceive that they are under stress when their work demands exceed their capacities (Hughes et al. 2019). Thus, workers with excessive workloads, long work hours, and work demands that exceed their capacity tend to feel fatigued and become burned out (Freudenberger, 1974). Yeh et al. (2023) suggested that workers' job

characteristics, job stress, and personality traits significantly correlate to burnout. Burnout is more noticeable in highly stressful jobs, but workers are less likely to burn out when they complete tasks that are highly important and require high-skill variety. Furthermore, employees who are more optimistic tend to feel lower levels of burnout. For real estate brokers, poor performance is equivalent to not earning a salary. Therefore, faced with the immense pressure to meet sales targets, brokers who are not stress-resistant are prone to turnover. Indeed, Cebalano et al. (2019) tested workers' stress and found that salary level and burnout are determinants of turnover intention. Thus, the salient factors affecting turnover intention include job stress and burnout in addition to salary level.

This study focused on real estate brokers in Tainan City. As of January 2023, there were 587 real estate company offices (Tainan City Government Open Data Platform, 2023), and 4083 brokers were working in Tainan City as of September 2022 (Center for Real Estate Research, National Chengchi University, 2023). Lin's and You's (2018) study on the impacts of macroeconomic factors on the real estate cycle in China found that the fluctuation in the real estate industry is dynamic and that business cycles positively affect the real estate cycle. Furthermore, supply and demand in real estate are marked by time differences because the value chain of real estate is a lengthy process that encompasses the planning, funding, design, development, construction, selling, and after-sales service of real estate products. During periods of rapid economic growth, only a small number of houses can be immediately provided, and flexibility in supply is low, which contrasts with other products that can be swiftly provided as demand increases. Once the demand stops, the supply increases significantly because of the plans previously put in place. This time difference between the growth of demand and the response of supply is the main cause of the real estate cycle (Lin and Lin, 2011). In addition, the real estate industry is marked by high levels of professionalism, large investments, longer payback periods, and high investment risks. Moreover, as people do not purchase houses arbitrarily, the number of transactions made by brokers varies, which affects their income and turnover intention. Li et al. (2021) offered several pragmatic suggestions that real estate management can use to ensure the sustainability of large real estate companies in China: A real estate business must have sufficient profitability, capital, management skills, human resources (HR), branding strategies, and innovation to gain a foothold and outlast their competitors. Because the real estate industry cannot impact the external business cycle, the only means of forming a sustainable business is to control the communication climate as well as organizational members' job stress, burnout, and turnover intention. These factors profoundly influence HR management (i.e., retention) in the real estate industry.

Bryk and Raudenbush (1992) showed that hierarchical linear modeling (HLM) can be used to analyze the individual data nested within an organization. Traditional regression models can only analyze the relationships between variables at a single level. In comparison, hierarchical linear models can analyze individual- and aggregate-level data and thus avoid violating the assumption of independence that may be present in traditional regression. HLM can also be used to effectively determine the influence of contextual variables on the outcomes (Hsieh, 2014). HLM can be used to separate different regression models and prevent within-group heterogeneity when a dependent variable data is nested and embedded. For instance, when a broker is nested within their branch office, their turnover intention is not only influenced by their condition background but also by the clustering effects (organizational rules, leader management skills) of their branch

office. The HLMs approach also avoids inferring smaller units of analysis through larger units of analysis at a single level. This study focused on real estate brokers in Tainan City using hierarchical linear moderation mediation modeling in which the brokers' personal attributes and psychological variables were taken into account so as to increase the usefulness of the results. We examined whether the influences of communication climate (an organizational variable) and job stress (an individual variable) on turnover intention were mediated by organizational identification and burnout, as well as whether the influence of communication climate on turnover intention was mediated by organizational identification. Additionally, we examined whether the influence of job stress on burnout, job stress on turnover intention, and burnout on turnover intention was moderated by communication climate. The findings of this study can serve as reference for real estate managers when handling intra-organizational management affairs.

Literature review and hypothesis development

The relationship between the communication climate, organizational identification, and turnover intention. The concept of organizational identification was first proposed by Becker (Becker, 1960). This concept is a psychological phenomenon in which employees unilaterally invest professionalism, time, and effort into their respective organizations. As these values accrue, the employees are more likely to remain in the organization (Liang et al. 2022). Thus, organizational identification increases employees' work motivation levels, improves their job satisfaction and organizational citizenship behavior, and reduces their turnover intention (Wegge et al. 2006). From the perspective of organizational structure and level, Bartels et al. (2006) observed that work groups' communication climates have a strong and positive correlation with organizational identification because employee-employee communication enhances individuals' external prestige and is useful for explaining organizational identification. Gliksona and Erez (2020) conducted a global study of the communication climate and intercultural communication in 60 virtual teams of masters of business administration students and found that a positive communication climate fostered their organizational identification and improved their team performance. Bentein et al. (2005) examined the influence of communication climate on the variation in affection, commitment compliance, and turnover intention in a sample of 1277 alumni who graduated from a Belgian university between 1988 and 1997. They found that the communication climate mediated the alumni's interorganizational affection, thereby effectively generating their organizational identification and reducing turnover intention. Al-Kahtani and Allam (2015) analyzed the impacts of the communication climate on the role ambiguity and organizational identification of 368 Saudi Arabians working as administrators in different departments at Salman bin Abdulaziz University. The results revealed that a defensive communication climate had a significantly negative effect on organizational identification and that it increased the employee turnover rate, while a supportive and pragmatic communication climate improved employees' organizational identification and increased their work efficiency. Therefore, we propose the following two hypotheses:

H1: Communication climate has a significant and positive influence on organizational identification.

H2: Communication climate has a significant and negative influence on turnover intention.

Liang et al. (2022) examined the perceived social support, organizational identification, and job engagement of employees working at senior citizen learning centers. The results showed

that members who developed a sense of attachment and loyalty to their organization wanted to continue being a part of their organization, thus shaping their organizational identification and reducing the likelihood of turnover. In addition, Jehanzeb et al. (2013) proposed that organizational identification has a negative influence on turnover intention. Therefore, we propose the following hypothesis:

H3: Organizational identification has a significant and negative influence on turnover intention.

The relationship between job stress, burnout, salary level, and turnover intention. Jamal (1990) described job stress as an individual's response to threats related to their work environment and their job characteristics. Burnout is the consequence of experiencing prolonged job stress (Schaufeli and Buunk, 2003). It is a state of personal resource depletion that is characterized by intense emotional exhaustion, listlessness, lack of personal accomplishment, and depersonalization (Adriaenssens et al. 2015). Indeed, Chiang and Liu (2017) studied the causal relationship between job stress and burnout, and they demonstrated that high levels of job stress and heavy workloads do result in higher levels of burnout. Soelton et al. (2020) examined the impact of job insecurity, job stress, and work-family conflict on employee burnout, with the results revealing that all three variables had significantly positive effects on burnout. Liu et al. (2023) explored the work environment, job stress, and burnout of nurses in eastern Taiwan and found that they had higher levels of job stress and burnout, and their willingness to stay in their respective organizations was influenced by their work environment. Therefore, fostering a positive work environment reduced their job stress and occupational burnout in addition to increasing their willingness to stay.

Taxing job demands, high-stress levels, and emotional exhaustion may increase burnout levels and affect employees' mental health and turnover intention (Adriaenssens et al. 2017). Arshadi and Damiri (2013) examined the relationship between job stress and both turnover intention and job performance, with the results revealing a positive correlation between job stress and turnover intention. Hsu et al. (2020) noted that employees who experienced high levels of job stress had increased burnout levels, subsequently reducing their service quality and increasing their turnover intention. There are exceptions, however. Wang (2023) identified Taiwanese civil servants' intentions to stay as an important HR management issue in the public sector. Due to the difficulty of the examination civil servants need to sit and the stable pay offered by the job, civil servants are unlikely to leave the organization even if they are facing tremendous job stress; they would instead consider switching departments. In contrast, real estate brokers have irregular work hours, and their salaries are determined by their performance. Therefore, it is worth examining whether brokers choose to remain in their organizations when they earn more. We propose hypotheses H4 and H5 as follows:

H4: Job stress has a significant and positive influence on burnout.

H5: Job stress has a significant and positive influence on turnover intention.

Burnout positively influences turnover intention when unhappy employees disengage from their jobs (Maslach and Leiter, 2005). Chong and Monroe (2015) found that burnout significantly and positively influenced turnover intention, with the solution of increasing employees' job satisfaction and reinforcing their organizational commitment being proposed. Lu and Gursoy (2016) studied the effects of burnout on turnover intention and demonstrated that burnout affects job satisfaction, thereby promoting turnover intention. This is commonplace in

typical job environments. However, employees who receive extrinsic support that reduces their job stress have lower turnover intention. For example, Duan et al. (2019) examined the impacts of workplace violence on healthcare workers' job satisfaction, burnout, and turnover intention in nine tertiary hospitals in four provinces across eastern, central, and western China, with social support being employed as a mediator variable. The findings showed that burnout had a positive effect on turnover intention. Moreover, social support (including direct material aid, social support, social networks, the existence and participatory effects of social groups, and support from supervisors, friends, and family) increased the friendliness of the work environments. These findings have practical implications for the stability of healthcare teams. This study assesses the influence of burnout on turnover intention in the real estate brokerage industry. Thus, we propose the following hypothesis H6 as follows:

H6: Burnout has a significant and positive influence on turnover intention.

Fong and Schaffer (2003) suggested that employees who are satisfied with their salary tend to identify more closely with their organization than those who are unsatisfied. Conversely, when they are dissatisfied with their salary, they identify less strongly with their organization and desire to resign. Sheikh (2019) found that increasing both extrinsic rewards (salary, incentive, allowances, and other benefits) and intrinsic rewards for employees improves their job satisfaction and reduces their turnover intention. The results showed that both salary and intrinsic rewards had significant and negative effects on employees' job satisfaction and turnover intention. Ceblano et al. (2019) identified job control, salary level, and burnout as predictors of turnover intention, with salary level being shown to have a significant and negative influence on turnover intention. The higher the salary, the lower the turnover intention of employees. We propose hypothesis H7 as follows:

H7: Salary level has a significant and negative influence on turnover intention.

The mediating effects of the communication climate. Kim and Lee (2009) suggested that communication negatively impacts the relationship between stress and burnout. Hsieh and Wang (2012) found that work stress has a significant and positive impact on burnout, with this influence being moderated by the internal and external control of job demands. This means that the effective internal and external control of job demands diminishes the positive influence of work stress on burnout. In other words, the greater the job stress, the higher the expected burnout level, but this can be reduced through stronger internal and external control. Hsu et al. (2020) investigated how the communication climate is associated with employees' job stress, burnout, and turnover intention in a sample of Taiwanese hotel employees, with work values being implemented as a moderator variable. The findings showed that employees' perceived job stress directly reduced their service quality through burnout. An organization having a conducive communication climate reduces the impact of job stress on burnout, and it also hinders the negative relationship between job stress and burnout. It is also likely that a stronger communication climate moderates the influence of job stress on burnout in that burnout levels increase when employees' job stress is greater. An organization with an excellent communication climate diminishes the positive influence of work stress on burnout. Therefore, we propose the following hypothesis:

H8: The influence of job stress on burnout is moderated by communication climate.

Ahmad and Abdullah (2014) studied the moderating effect of organizational communication climate on conflict management

based on a sample of 125 employees from an oil and gas company. The results highlighted the importance of communication climate within an organization because it improves employee performance and reduces employee burnout and turnover intention. An organization's success hinges on the effect of communication climate on the organization's atmosphere, which either promotes or hinders horizontal, upward, and downward communication among employees. Moreover, the communication climate in supportive environments is marked by mutual encouragement, active participation, and the healthy exchange of information among employees, which effectively prevents turnover caused by burnout or conflict between organizational members. Wang et al. (2020) showed that even employees in an organization with a positive communication climate and high salary level sometimes experience burnout, and the organization can effectively reduce employee burnout and turnover rates by increasing the salary level and strengthening the intra-organizational communication climate. We propose hypothesis H9 as follows:

H9: The influence of burnout on turnover intention is moderated by communication climate.

Kim and Stoner (2008) posited that employees who are unable to relieve their job stress often have stronger turnover intentions. This can be prevented by fostering a positive communication climate in the workplace. Hung et al. (2018) studied the relationship between interorganizational communication climate, organizational commitment, and turnover intention in life insurance salespeople, with the results demonstrating that the communication climate impacts turnover intention through the mediating effects of organizational identification. Furthermore, Liang and Chou (2022) investigated the relationships between personality traits, job stress, job satisfaction, and turnover intentions among Taiwanese construction workers. The results indicate that married workers had lower levels of turnover intention due to their family responsibilities. Moreover, workers who were over 55 years of age had more experience on the job, adapted better to job stress, and enhanced their respective organizations' communication climates. Conversely, workers under 25 years of age were still learning and in an exploratory stage, and they had the highest level of turnover intention, which was probably due to their inexperience, lower stress tolerance, and reduced cohesion with the organizational climate. In simpler terms, the influence of job stress on turnover intention is moderated by the communication climate. Therefore, we propose the following hypothesis:

H10: The influence of job stress on turnover intention is moderated by communication climate.

In HLM, the source data are nested because they are acquired through two-stage (or multistage) cluster sampling or stratified sampling. The collected variable data forms a hierarchical structure that violates many traditional statistical methods' assumptions of data independence. Thus, HLM is a statistical method that can be used for correlated and clustered data (Wen, 2014). Based on H1-H3, we constructed a multilevel 2-2-1 mediation model in which organizational identification was employed as the mediation variable. In addition, the communication climate within an organizational level affects the organizational identification within that level and further influences turnover intention. Tu (2015) suggested that the communication climate influences turnover intention through organizational commitment, as employees are more likely to resign when they have low organizational commitment, and organizational identification is the mediator between communication climate and turnover intention. Chan and Lin (2019) studied the relationship between nurses' turnover intention, communication climate, and stress-coping behaviors. The results revealed that an improved communication climate enhanced

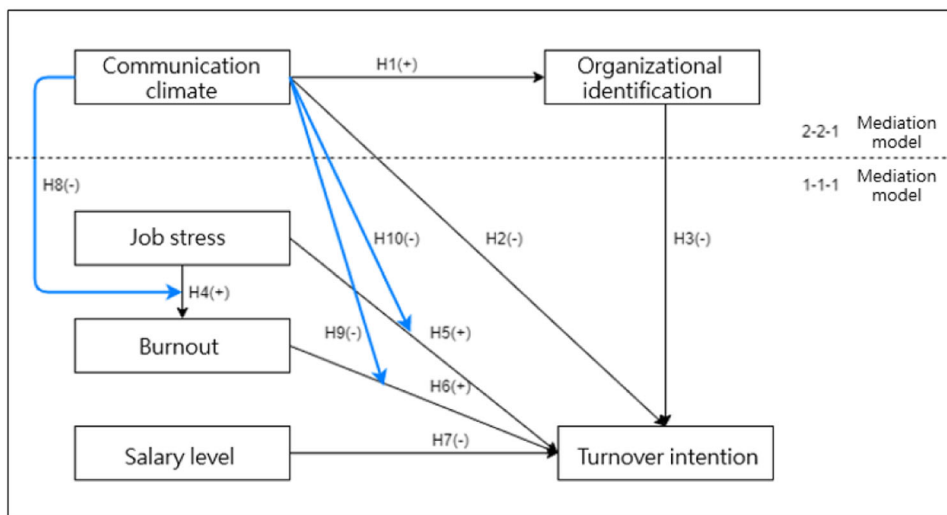


Fig. 1 The conceptual framework diagram of turnover intention. H1 represents the first hypothesis, and so on. “+” indicates a positive relationship, and “-” indicates a negative relationship.

their organizational identification and that their frequent adoption of stress-coping behaviors reduced their turnover intention. Wu and Yu (2021) stated that an organizational climate fosters the members’ acceptance of the organizational goals and values, and it also generates rapport and involvement with empathy for and loyalty toward their organization. Organizational identification is the subjective and affective bonds that organizational members have toward their organization when their personal goals align with organizational goals. Members feel as though their organization values their personal contributions when it expresses its support and commitment to them. An excellent communication climate and organizational identification are determined by members perceiving that their organization is willing to reward them for their hard work, which effectively reduces their turnover intention.

We propose hypothesis H11 as follows:

H11: Communication climate influences turnover intention through the mediating effects of organizational identification.

In 2019, the World Health Organization redefined burnout as an occupational phenomenon that confers greater managerial responsibilities on organizational leaders (Wu et al. 2022). Wen et al. (2020) examined the influences of job stress, burnout, and workplace climate on front-line hotel employees’ turnover intention, with the results showing that job stress influences turnover intention through the mediating effects of burnout. This suggests that stressed employees do not resign immediately unless they are experiencing high levels of burnout. Regarding the mediating effects of burnout, Lin (2012) suggested that turnover rates increase when employees perceive high job stress levels. Shen and Trinh (2017) studied the influence of burnout on indigenous employees’ turnover intention using the adversity quotient and through measuring job stress, work involvement, work values, and adaptability. The results revealed that job stress had a positive and significant influence on the adversity quotient and that job stress increased the turnover rate due to a higher perceived level of burnout. Thus, job stress mediates turnover intention through burnout. Therefore, we propose the following hypothesis:

H12: Job stress influences turnover intention through the mediating effects of burnout.

Methods

The hierarchical linear moderated mediation model. This study performed data analysis through HLM. In traditional regression analysis, organizational and individual variables are placed into a

single regression model, which can result in a bias called the assumption of independence. Because the standard error of the estimated regression coefficient in traditional regression analysis is very small, the null hypothesis is easily rejected, which in turn increases the error rate (Wen and Chiou, 2009). When applying hierarchical data to a single-level traditional regression model, the organizational variables affect the individual variables. This violates the assumption that all error terms in a traditional regression model should be independent of one another and thus yields erroneous analysis results (Hsieh, 2014). The hierarchical linear moderated mediation modeling approach in HLM was employed for analysis in this study.

H1 posits that communication climate influences organizational identification; H2 and H3 posit that turnover intention is influenced by communication climate and organizational identification, respectively; H4 posits that job stress influences burnout; H5, H6, and H7 posit that turnover intention is influenced by job stress, burnout, and salary level, respectively; H8 posits that the influence of job stress on burnout is moderated by communication climate; H9 and H10 posit that communication climate moderates the influence of burnout and job stress, respectively; H11 posits that the influence of communication climate on turnover intention is mediated by organizational identification; and H12 posits that the influence of job stress on turnover intention is mediated by burnout. A framework showing the variables influencing turnover intention is provided in Fig. 1.

Analytical strategies and levels. In this study, an organization is regarded as an integrated system that consists of multiple individual and organizational levels. The variables in these two levels have multi-level interactions with one another. We examined the multilevel moderation and multi-level mediation relationships between the organizational variables (communication climate, organizational identification) and the individual variables (job stress, burnout, salary level, turnover intention). We employed the mediation model approach proposed by Krull and MacKinnon (1999) for analyzing two-level hierarchical data structures (i.e., 1→1→1, 2→1→1, 2→2→1 configurations). In this study, the first number in the 1→1→1 configuration denotes that the explanatory variable is an individual variable, the second number denotes that the mediator variable is an individual variable, and the third number denotes that the outcome variable is an individual variable. This model indicates that the influence of job

stress on turnover intention is mediated by burnout. Communication climate is assigned as a moderator variable. In addition to examining the testing principles and procedures of mediating and moderating effects, Baron and Kenny (1986) and James and Brett (1984) also elaborated on the combination effects of mediator and moderator variables (i.e., moderated mediation and mediated moderation), the former of which are examined in this study. In moderated mediation, all the pathways (direct, indirect, or simultaneous) of the mediation effects are influenced by another moderator variable.

Null model. In this study, the individual variables (burnout, turnover intention) were designed as outcome variables. First, prior to conducting a hierarchical linear analysis, a null model must be used to check for significant differences in the individual turnover intention (TURNOVER) or burnout (BURNOUT) between and within branches, as well as to estimate the amount of between-branch variance that constitutes the total variance in the individual turnover intention (TURNOVER) or burnout (BURNOUT). The model settings are shown in Eqs. (1) and (2):

Level 1

$$\text{TURNOVER}_{ij} = \beta_{0j} + r_{ij}, \tag{1}$$

Level 2

$$\beta_{0j} = \gamma_{00} + u_{0j}, \tag{2}$$

where TURNOVER_{ij} represents the individual turnover intention of the i th person in the j th branch; β_{0j} represents the mean turnover intention of the j th branch; r_{ij} indicates the within-group error, with a mean of 0; the variance σ^2 is independent, homogenous, and normally distributed; γ_{00} represents the total mean score of the individual turnover intention; u_{0j} represents the difference in the mean individual turnover intention and the total mean score of the individual turnover intention of each branch; u_{0j} is the between-group error, which is independent and has a mean of 0; τ_{00} is the variance and is independent, homogenous, and normally distributed; and r_{ij} and u_{0j} are assumed to be independent of each other. The same settings were applied to the burnout null model and shall not be elaborated on further.

Hierarchical moderated mediation model. Based on the construction of the hierarchical linear moderated mediation model, random effects were used to set the Level 1 intercept. This means that (1) the mediation effects in the 2→2→1 configuration were communication climate → organizational identification → turnover intention, and (2) the mediation effects in the 1→1→1 configuration were job stress → burnout → turnover intention. Common methods for testing mediation effects include the ordered regression coefficient test, the Sobel test, and differences in coefficients. The ordered regression coefficient test proposed by Baron and Kenny (1986) is a popular method. This study followed Baron and Kenny's (1986) three-step test method in which the first step was to test the influence of the independent variables on the dependent variables, namely the influences of communication climate (COMMUNICATION) and job stress (PRESSURE) on turnover intention (TURNOVER), as shown in Eqs. (3) through (5). The second step was to test the influence of the independent variables on the mediator variables, namely the influence of communication climate (COMMUNICATION) on organizational identification (IDENTITY), and the influence of job stress (PRESSURE) on burnout (BURNOUT), as shown in Eqs. (6) through (9). Lastly, the other variables were included into the model, and the influences of communication climate (COMMUNICATION), organizational identification

(IDENTITY), job stress (PRESSURE) and burnout (BURNOUT) were estimated, as shown in Eqs. (10) through (14). The business model (TYPE) and job tenure (EXP) were set as control variables. The first step is as follows:

Level1

$$\text{TURNOVER}_{ij} = \beta_{0j} + \beta_{1j}\text{PRESSURE}_{ij} + \beta_{2j}\text{EXP}_{ij} + r_{ij}, \tag{3}$$

Level2

$$\beta_{0j} = \gamma_{00} + \gamma_{01}\text{COMMUNICATION}_j + \gamma_{02}\text{TYPE}_j + u_{0j} \tag{4}$$

$$\beta_{kj} = \gamma_{k0}, k = 1 \sim 2, \tag{5}$$

where β_{0j} is the Level 1 intercept; $\beta_{1j} \sim \beta_{2j}$ represent the coefficients of the Level 1 independent variables; γ_{00} is the total mean turnover intention; γ_{01} is the coefficient of communication climate (COMMUNICATION); TYPE represents the business model of a branch (a dummy variable, direct sales = 1, franchise = 0); u_{0j} is the between-group error, which is independent and has a mean of 0; and τ_{00} is the variance and is independent, homogenous, and normally distributed. Fixed effects were applied to Eq. (5), without a random error. The estimations for Eqs. (3) through (5) are presented in Model 1 in Table 3. If γ_{10} or γ_{01} was significant, then the second step was used for estimation. The ordinary least squares (OLS) method was used to estimate the influence of communication climate (COMMUNICATION) on organizational identification (IDENTITY) because both were Level 2 variables. In the second step, the mediation effect of communication climate on the influence of job stress on burnout was analyzed using the model that follows:

Level 1

$$\text{BURNOUT}_{ij} = \beta_{0j} + \beta_{1j}\text{PRESSURE}_{ij} + \beta_{2j}\text{EXP}_{ij} + r_{ij}, \tag{6}$$

Level 2

$$\beta_{0j} = \gamma_{00} + \gamma_{01}\text{TYPE}_j + u_{0j}, \tag{7}$$

$$\beta_{1j} = \gamma_{10} + \gamma_{11}\text{COMMUNICATION}_j + u_{1j}, \tag{8}$$

$$\beta_{2j} = \gamma_{20}. \tag{9}$$

The estimations for Eqs. (6) through (9) are presented in Model 2 in Table 3. If γ_{10} or the coefficient of communication climate on organizational identification was significant, then the third step was used for estimation. The settings are as follows:

Level 1

$$\text{TURNOVER}_{ij} = \beta_{0j} + \beta_{1j}\text{PRESSURE}_{ij} + \beta_{2j}\text{BURNOUT}_{ij} + \beta_{3j}\text{SALARY}_{ij} + \beta_{4j}\text{EXP}_{ij} + r_{ij} \tag{10}$$

Level 2

$$\beta_{0j} = \gamma_{00} + \gamma_{01}\text{COMMUNICATION}_j + \gamma_{02}\text{IDENTITY}_j + \gamma\text{TYPE}_j + u_{0j}, \tag{11}$$

$$\beta_{1j} = \gamma_{10} + \gamma_{11}\text{COMMUNICATION}_j + u_{1j} \tag{12}$$

$$\beta_{2j} = \gamma_{20} + \gamma_{21}\text{COMMUNICATION}_j + u_{2j} \tag{13}$$

$$\beta_{kj} = \gamma_{k0}, k = 3 \sim 4, \tag{14}$$

The estimations for Eqs. (10) through (14) are presented in Model 3 in Table 3. If γ_{20} was not significant, then there were no mediation effects; if γ_{20} was significant, but γ_{10} , γ_{01} , or γ_{02} were, then there were partial mediation effects; if γ_{20} was significant, but γ_{10} , γ_{01} , or γ_{02} were not, then there were complete mediation effects.

Questionnaire design. The questionnaire in this study consisted of two sections. The first section covered communication climate, organizational identity, job stress, burnout, salary level, and turnover intention; the second section covered the participants' basic information, including sex, age, marital status, has/does not have children under the age of six, education level, and tenure in the housing brokerage industry. The eight items pertaining to communication climate covered the two sub-dimensions of effective communication skills and precise communication, and they were developed based on studies by Madlock and Kennedy-Lightsey (2010) and Dewan and Myatt (2008). The eight items pertaining to communication climate covered the two sub-dimensions of situated identification and in-depth structural identification and were developed based on studies by Rousseau (1998), Dutton et al. (1994), Yang et al. (2014), and Wu and Yu (2021). The three items pertaining to job stress were developed based on the study by Parker and DeCotiis (1983). The nine items pertaining to burnout covered the three sub-dimensions of resource leveling theory, person-environment fit theory, and self-discrepancy theory (with three items in each sub-dimension), and these items were developed based on the studies by Hobfoll and Freedy (1993), Schaufeli and Buunk (2003), and Tung (2019). The six items pertaining to burnout covered the three sub-dimensions of financial compensation and non-financial compensation (with three items in each sub-dimension) and were developed based on the study by Gerhart and Meiyu (2015). The four items pertaining to turnover intention were developed based on studies by Li et al. (2017) and Nadiri and Tanova (2010). All items were measured on a five-point Likert scale (1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree). Table 1 presents the questionnaire items and data sources.

Data collection, descriptive statistics, and data treatment

Data collection and descriptive statistics. This study surveyed the housing brokerage industry of Tainan City in Taiwan. Five housing brokerage chains with a large number of branches were selected: Taiwan Realty, Yung Ching Realty, H&B Housing, CTBC Real Estate, and Sinyi Realty. The participants were brokers working at the six surveyed administrative districts—the East, West Central, North, South, Anping, and Annan districts. A questionnaire was administered in person to the participants at each branch and recovered one week later (out of consideration for their demanding work schedules). The survey period lasted from October 1 to November 30, 2020. A total of 870 questionnaires were administered to 87 branch offices, and 615 questionnaires were recovered from 77 branch offices. Four branches were removed from the sample because less than two questionnaires were recovered from each branch, along with 57 incomplete questionnaires. This left a total of 558 valid questionnaires, indicating an effective response rate of 64.1%.

In the valid sample, men accounted for 55.4% (309 participants), while women accounted for 44.6% (249 participants). Regarding marital status, married participants accounted for 40.7% (227), unmarried participants accounted for 55.2% (308), and others accounted for 4.1% (23). Of the participants, 17% (95) were parents to children under the age of six, while 83% (463) were not. Regarding tenure, the majority of the participants had been working for more than five years (37.6%, 210) or between one and three years (22.2%, 124). They were followed by those working for 6 months to 1 year (12.2%, 68) and between 3 and 5 years (11.3%, 63), and last, there were those who had been working for 3–6 months (9%, 50) or less than 3 months (7.7%, 43). Regarding education level, the majority of the participants had received university or 4-year technical college educations (54.7%, 305). This group was followed by those who received a

senior (vocational) high school education or less (23.5%, 131), those with a junior college education (17.6%, 98), those who received junior high school education or less (1.1%, 6), and last, those who had received postgraduate education (3.2%, 18). The participants' mean age was 38 years, with the maximum and minimum being 20 and 74 years, respectively.

Control variables. In a regression analysis, the influence of control variables such as business model and tenure must be considered. Promotion opportunities in many companies are based on tenure, which reflects work experience. Employees with less work experience have less professional knowledge and skills and have a higher turnover intention than those with more experience. We used tenure as a control variable in this study.

The Level 2 variables were organizational variables. The business model of a real estate branch office was analyzed as a control variable. Franchisees mostly have no or low base salary but a high bonus, while direct sales stores mostly have a high base salary but a low bonus. Thus, direct sales stores are more attractive to potential brokers because they at least guarantee a stable income. Additionally, a no-base salary scheme may increase the turnover of real estate brokers (Peng, 2003). Thus, we used the business model as a control variable in this study.

Aggregation testes. In this study, communication climate and organizational identification were assigned as Level 2 variables. The data was a shared construct, as it was collected from each real estate broker. In addressing the treatment of shared construct data, Klein et al. (1994) indicated that prior to conducting a multi-level analysis, it is necessary to examine the appropriateness of consolidating individual variables to the aggregate level. According to George and James (1993), two conditions must be met for aggregation. The first is that the theoretical demonstration of a construct should be at the group level, and the second is that there should be adequate statistical demonstration of consensus within group members' scores. In other words, the appropriateness of aggregation is unrelated to between-group differences, as within-group consistency is the primary and likely the only standard (Newman and Sin, 2020). However, the within-group interrater reliability (r_{wg}), which is the indicator of within-group consensus, is limited by a number of factors, including the number of items, the group size, and estimation bias caused by inappropriate null distribution settings (Brown and Hauenstein, 2005). Therefore, many studies compensate for this drawback through within-group reliability. Woehr et al. (2015) consolidated simulation data and demonstrated that the internal reliability coefficient (r_{wg}) is less capable of distinguishing "pseudo-consistency" than the intraclass correlation (ICC1) and the reliability of the mean (ICC2). The authors suggested that within-group reliability should be used as the main standard for examining aggregation.

This study first considered the appropriateness of aggregating significant data clusters to the ICC1. The main function of the ICC1 is to examine whether individual-level data can be aggregated into high-level data. In this study, there were 73 branches in Level 2, and the calculated ICC1 of communication climate was 0.99 (greater than 0.7), indicating that the individual variables can be consolidated into the aggregate level. The ICC1 of organizational identification was 0.99, meaning that the individual variables can be consolidated into the aggregate level.

To further demonstrate the effectiveness of aggregating individual variables, the between-group variance must be examined. We used the reliability of the mean method, in which the group mean of the individual data serves as a

Table 1 Questionnaire items and data sources.

| Dimension | Questionnaire item | Source |
|-------------------------------|---|--|
| Communication climate | Good communication skills: 1. I communicate patiently with others. 2. I calmly persuade others to my execute own demands. 3. I respect others. 4. I consider the viewpoints of others when handling problems. Precise communication: 1. I am able to understand the opinions of others clearly. 2. I am able to think carefully before I speak. 3. I am often inclined to discuss important topics. 4. I communicate in a succinct and concise manner. | Madlock and Kennedy-Lightsey (2010); Dewan and Myatt (2008) |
| Organizational identification | Situated identification: 1. I perceive that my income level is high. 2. I perceive that my work tasks are independent. 3. I perceive that my job is interesting. 4. I perceive that my job can help others. In-depth structural identification: 1. I perceive that my company/organization values the general interests of all employees. 2. I perceive that my company/organization strives to benefit every employee. 3. I perceive that my company/organization expects every employee to benefit our customers. 4. I perceive that my colleagues always prioritize the good of their fellow colleagues. | Rousseau (1998); Dutton et al. (1994); Yang et al (2014); Wu and Yu (2021) |
| Job stress | 1. I perceive that my workload has increased drastically. 2. I need to work even harder to complete my tasks. 3. I often have many incomplete tasks. | Parker and DeCotiis (1983) |
| Burnout | Resource leveling theory: 1. I have a poor locus of control over the outcomes of my work. 2. I often have high demands for myself. 3. I feel that I am undercompensated for the efforts I have given in my work. Person-environment fit theory: 1. I feel exhausted after completing a task that is beyond my capabilities. 2. I question whether I am compensated appropriately for the work I have done. 3. I perceive that the work I do lacks impartiality, respect, and self-worth. Expectation-reality discrepancy theory: 1. I excessively idealize my work. 2. I overexaggerate my work capabilities. 3. I am aware of the harsh reality of my daily life. | Hobfoll and Freedy (1993); Schaufeli and Buunk (2003); Tung (2019) |
| Salary level | Financial compensation: 1. I perceive that my company/organization provides a base salary. 2. I perceive that my company/organization will increase my commission based on my work performance. 3. I perceive that my company/organization provides benefits such as health insurance, leave, maternity leave, parental leave, etc. Non-financial compensation: 1. I perceive that my company/organization has flexible work hours. 2. I perceive that my company/organization formally compliments the hard work of every employee. 3. I perceive that my company/organization provides various means for promotion. | Gerhart and Meiyu (2015) |
| Turnover intention | 1. I hope to find a new job next year. 2. I often consider resigning from work. 3. I have decided to resign. 4. I want to actively apply other jobs. | Li et al. (2017); Nadiri and Tanova (2010) |

contextual variable indicator and for establishing between-group heterogeneity. Dixon and Cunningham (2006) suggested that an ICC2 greater than 0.7 indicates that the group mean of the individual data is a highly reliable contextual variable indicator and that there are significant differences between the group mean. Our ICC2 was 0.99, indicating that the group mean of the individual data is a reliable contextual variable

Empirical results and discussion

Empirical results. First, we examined whether significant differences existed within and between branches with regard to individual turnover intention and burnout, as well as the proportion of the between-branch variance that constituted the total variance of individual turnover intention and burnout. The results are shown in Table 2. The turnover intention random effects model yielded an estimated variance of 0.228, which attained a 1% level

of significance. This indicates that the individual turnover intention of the brokers was significantly different across the branches. The within-group correlation coefficient was 0.241 ($=0.228/(0.228 + 0.719)$), indicating that 24.1% of the variance of individual turnover intention was caused by the between-group variance (between branches), while 75.9% was caused by the within-group variance (within branches). The burnout random effects model yielded an estimated variance of 0.073, which attained a 1% level of significance. This indicates that the individual burnout level of the brokers was significantly different across the branches. The within-group correlation coefficient was 0.161 ($=0.073/(0.073 + 0.380)$), indicating that 16.1% of the variance of individual burnout level was caused by the between-group variance (between branches), while 83.9% was caused by the within-group variance (within branches). Thus, we proceeded with the HLM analysis.

According to Table 3 and Fig. 2, the estimation results of Model 1 showed that the estimated coefficient of communication climate was -0.784, which attained a 1% level of significance. This suggests that communication climate has a significant and negative influence on turnover intention. The more positive the brokers' perceived communication climate, the lower their

turnover intention. The estimated coefficient of job stress was 0.212 and attained a 1% level of significance. This suggests that job stress has a significant and positive influence on turnover intention. The higher the brokers' perceived level of job stress, the higher their turnover intention.

The estimation results of Model 2 showed that the estimated coefficient of job stress was 0.322, and it attained a 1% level of significance. The empirical results therefore support H4. This finding suggests that job stress has a significant and positive influence on burnout. The higher the brokers' perceived level of job stress, the higher their perceived burnout level. The moderation effect of communication climate on the influence of job stress on burnout yielded an estimated coefficient of -0.001 but did not attain a level of significance. The empirical results therefore do not support H8. This finding suggests that the influence of job stress on burnout was not moderated by communication climate. The influence of communication climate on organizational identification assumed a 2-2-1 configuration. Two variables could not be estimated using HLM because they were organizational variables, and therefore, we used OLS instead. The estimated coefficient was 0.542, and it attained a 1% level of significance. The empirical results therefore support H1. This suggests that communication climate has a significant and positive influence on organizational identification. The more positive the brokers' perceived communication climate, the stronger their organizational identification.

The estimation results of Model 3 showed that the estimated coefficient of the influence of job stress on turnover intention was 0.018, but it did not attain a level of significance. The empirical results therefore do not support H5. The moderation effect of communication climate on the influence of job stress on turnover intention yielded an estimated coefficient of -0.404 and attained a 1% level of significance. The empirical results therefore support H10. This means that the positive influence of job stress on turnover intention is moderated by communication climate. The more positive the brokers' perceived communication climate, the weaker the positive influence of job stress on their turnover intention. The estimated coefficient of the influence of burnout

Table 2 Empirical results of the null models.

| Turnover intention | Standard error | Variance | Degrees of freedom | Chi-squared statistic | p-value |
|---------------------------|----------------|----------|--------------------|-----------------------|---------|
| $u_{0j}, \hat{\tau}_{00}$ | 0.47701 | 0.228 | 72 | 247.538 | <0.001 |
| $r, \hat{\sigma}^2$ | 0.84769 | 0.719 | | | |
| Burnout | | | | | |
| $u_{0j}, \hat{\tau}_{00}$ | 0.27074 | 0.073 | 72 | 180.651 | <0.001 |
| $r, \hat{\sigma}^2$ | 0.61646 | 0.380 | | | |

Note: Level 1 sample size = 558; Level 2 sample size = 73. u_{0j} is the between-group error, $\hat{\tau}_{00}$ is its estimated variance, r is the within-group error, and $\hat{\sigma}^2$ is its estimated variance. * indicates a level of significance at $p < 0.1$, ** indicates a level of significance at $p < 0.05$, *** indicates a level of significance at $p < 0.01$. Numbers in brackets indicate robust standard errors.

Table 3 Analysis of empirical results.

| Outcome variable | Model 1: Turnover intention (Independent variable vs. outcome variable) | Model 2: Burnout (Independent variable vs. mediator variable) | Model 3: Turnover intention (Independent variable and mediator variable vs. outcome variable) |
|---|---|---|---|
| Fixed effects | | | |
| Intercept | 2.206*** (0.062) | 2.963*** (0.041) | 2.207*** (0.049) |
| Level 1 | | | |
| Job stress | 0.212*** (0.057) | 0.322*** (0.034) | 0.018 (0.044) |
| Communication climate | | -0.001 (0.128) | -0.404*** (0.149) |
| Burnout | | | 0.568*** (0.071) |
| Communication climate | | | 0.172 (0.153) |
| Salary level | | | -0.236*** (0.069) |
| Tenure | -0.024 (0.026) | 0.007 (0.016) | -0.040 (0.022) |
| Level 2 | | | |
| Communication climate | -0.784*** (0.188) | 0.542*** (0.46) | -0.209 (0.199) |
| Organizational identification | | | -1.059*** (0.127) |
| Business model | 0.059 (0.175) | 0.014 (0.126) | -0.062 (0.099) |
| Between-group $u_{0j}, \hat{\tau}_{00}$ | 0.193*** | 0.082*** | 0.111*** |
| Within-group $r, \hat{\sigma}^2$ | 0.830 | 0.312 | 0.551 |
| Deviance (-2LL) | 1468.245 | 1028.360 | 1339.577 |
| Number of estimated parameters | 2 | 2 | 2 |

Note: Level 1 sample size = 58; Level 2 sample size = 73. u_{0j} is the between-group error, $\hat{\tau}_{00}$ is its estimated variance, r is the within-group error, and $\hat{\sigma}^2$ is its estimated variance. * indicates a level of significance at $p < 0.1$, ** indicates a level of significance at $p < 0.05$, *** indicates a level of significance at $p < 0.01$. Numbers in brackets indicate robust standard errors.

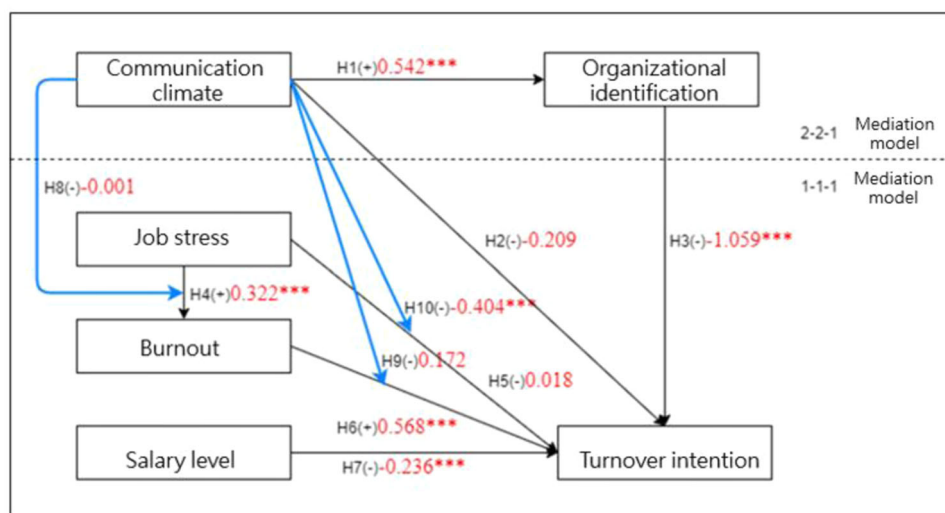


Fig. 2 The empirical results.

on turnover intention was 0.568, and it attained a 1% level of significance. The empirical results therefore support H6. This means that the higher the brokers' perceived burnout level, the higher their expected turnover intention. The moderation effect of communication climate on the influence of burnout on turnover intention yielded an estimated coefficient of 0.172 but did not attain a level of significance. The empirical results therefore do not support H9. This means that the positive influence of burnout on turnover intention is not moderated by communication climate. The estimated coefficient of the influence of salary level on turnover intention was -0.236, and it attained a 1% level of significance. The empirical results therefore support H7. This means that the higher the brokers' salary level, the lower their turnover intention. The estimated coefficient of the influence of communication climate on turnover intention was -0.209, but it did not attain a level of significance. The empirical results therefore do not support H2. The estimated coefficient of the influence of organizational identification on turnover intention was -1.059, and it attained a 1% level of significance. The empirical results therefore support H3.

During the mediation effects test procedure, the first step showed that the estimated coefficient of the influence of communication climate on job stress was significant, and thus the first step of mediation testing was achieved. This finding indicates that communication climate and job stress significantly influence turnover intention. In the second step, the estimated coefficient of the influence of job stress on burnout was positive and significant. This suggests that communication climate has a positive and significant influence on organizational identification. This finding indicates that the results of the second step satisfied the assumption that the independent variable had a significant influence on the mediator variable. In the third step, the estimated coefficient of the influence of organizational identification on turnover intention was negative and significant. The empirical results therefore support H11. This finding shows that the influence of communication climate on turnover intention was mediated by organizational identification. The estimated coefficient of the influence of burnout on turnover intention was positive and significant. The empirical results therefore support H12. This finding shows that the influence of job stress on turnover intention was mediated by burnout. The empirical results do not support H2 and H5, indicating that the influences of communication climate and job stress on turnover intention had no direct effects. The influences of communication climate

and job stress on turnover intention were instead entirely mediated by organizational identification and burnout. The outcomes of the empirical results on the hypotheses are shown in Table 4.

Discussion. Bartels et al. (2010) suggested that the dimensions of horizontal communication and vertical communication are important predictors of organizational identification and professional identification, respectively. Bentein et al. (2005) argued that communication satisfaction and organizational commitment represent a source of mental stability or a peremptory force that promotes an individual's identification with organization-related activities. Bartels et al. (2006) applied HLM to study the influence of external prestige and communication climate on organizational identification. The results showed that if management plans to influence organizational identification through a bottom-up approach, then communication in the workplace is key. Good interorganizational communication effectively improves the perceived external prestige and identity of the organization. The empirical results therefore support H1.

Mustamil et al. (2014) examined the relationship between communication satisfaction and turnover intention but failed to observe a significant correlation between the communication climate among colleagues and turnover intention. Bentein et al. (2005) examined the relationship between commitment and turnover using a latent linear growth model. The study period ranged from 2000 to 2001, and 1227 graduates who graduated from a Belgian university between 1998 to 1997 were randomly sampled. The results indicated that the variations in the three variables pertaining to organizational commitment (affective commitment, normative commitment, and continual commitment) diminished over time, thus increasing turnover intention. In other words, a person's affective and normative commitment tends to increase their turnover intention with time. A communication climate can be either supportive or defensive. The former is characterized by an organizational culture that prioritizes open information exchange, approachable colleagues, high levels of cooperation and interaction, and knowledge sharing. Hassan et al. (2011) identified communication climate as a key factor of organizational performance. A supportive communication climate promotes the active participation of organization members in their work, as well as the development of constructive solutions for resolving conflicts. Conversely, in a

Table 4 Outcomes of the empirical results on the hypotheses.

| Hypothesis | Outcome |
|--|---------------|
| H1: Communication climate has a significant and positive influence on organizational identification. | Supported |
| H2: Communication climate has a significant and negative influence on turnover intention. | Not supported |
| H3: Organizational identification has a significant and negative influence on turnover intention. | Supported |
| H4: Job stress has a significant and positive influence on burnout. | Supported |
| H5: Job stress has a significant and positive influence on turnover intention. | Not supported |
| H6: Burnout has a significant and positive influence on turnover intention. | Supported |
| H7: Salary level has a significant and positive influence on turnover intention. | Supported |
| H8: The influence of job stress on burnout is moderated by communication climate. | Not supported |
| H9: The influence of burnout on turnover intention is moderated by communication climate. | Not supported |
| H10: The influence of job stress on turnover intention is moderated by communication climate. | Supported |
| H11: Communication climate influences turnover intention through the mediating effects of organizational identification. | Supported |
| H12: Job stress influences turnover intention through the mediating effects of burnout. | Supported |

defensive communication climate, employees can only express themselves in a conservative and strict manner, and employee morale is significantly poorer than it is in an organization with a supportive communication climate. The antecedents of turnover intention include a variety of factors, as turnover is not the result of a single factor (Hom et al. 2012; Nouri and Parker, 2013). The empirical results do not support H2.

Dessler (2008) and DeNishi and Griffin (2009) suggested that organizational growth hinges on fostering an excellent organizational culture. Organizational identification promotes heightened work motivation among employees, increases their job satisfaction and organizational citizenship behavior, and reduces their turnover intention (Wegge et al. 2006). The empirical results support H3.

Chiang and Liu (2017) studied the causal relationships between job stress, burnout, and turnover intention. The results showed that job stress influences burnout. Kahn et al. (1964) identified role stress as a component of job stress, which may result in negative emotional experiences for employees, such as heightened anxiety, serious internal conflict, and reduced job satisfaction and confidence. In addition, job stress hinders employees' willingness to identify with and work hard for their organization, thus reducing their willingness to retain their position and increasing their likelihood of resigning (Fogarty et al. 2000). The empirical results support H4.

Arshadi (2011) studied the relationship between job stress and turnover intention and showed that job stress had a significant and positive influence on turnover intention. Thus, providing employees with organizational support not only reduces their stress-related turnover intention but also enables them to build affective attachment, thereby diminishing the influence of stress on turnover intention. The empirical results do not support H5. Cavanaugh et al. (2000) argued that job stress does not necessarily reflect negative feelings among employees. The authors divided job stress into two types: challenge-related and hindrance-related. The former is regarded as a positive stressor, in which employees view their work demands as encouragements and opportunities that help them grow and achieve their goals. The latter hampers personal growth and goal achievement. In a challenge-hindrance model, people often cognitively assess their stressors and categorize them. Challenge-related stressors positively influence work performance and attitudes, as they promote a sense of accomplishment among employees, while hindrance-related stressors negatively influence job performance and attitudes, as they do not stimulate an employee's potential (Podsakoff et al. 2007).

Wong and Laschinger (2015) suggested that job stress may lead to burnout, poorer physical and mental health, and higher turnover intention. A well-functioning work environment

effectively reduces burnout and turnover intention. Lu and Gursoy (2016) examined the influence of burnout on turnover intention and showed that burnout influences job satisfaction, which in turn influences turnover intention. The empirical results support H6.

The results of the study by Cebalano et al. (2019) showed that job control, salary level, and burnout are predictors of turnover intention. Employees are more likely to resign when they have an uncompetitive salary level, heightened burnout, and poor job control (Batt and Banerjee, 2012). The empirical results support H7.

Kim and Lee (2009) wrote that organizational climate effectively reduces the relationship between work stress and burnout. Chu (2020) studied emotional experiences (communication climate), job stress, and burnout among elementary school teachers in Taipei City and Chiayi County. The study recovered 315 valid questionnaires. The results showed that the communication climate in the classroom moderated the teachers' job stress and influenced their perceptions of burnout. In practice, real estate brokers have a high turnover rate. Employees who develop burnout due to job stress will often still resign from an organization despite its effective communication climate. This is an attribute of the real estate industry. The empirical results do not support H8.

Kim and Stoner (2008) suggested that social support moderates the influence of role stress on turnover intention. Wen et al. (2020) found that service climate moderates the influence of job stress on turnover intention. In this study, we examined whether communication climate moderates the influence of burnout on turnover intention. The empirical results do not support H9. Al-Kahtani and Allam (2015) noted that every organization should foster a positive communication climate to moderate the workplace climate so as to effectively reduce employees' turnover intention due to job stress. However, even though communication climate moderates employees' turnover intention due to burnout, The moderation effects may not be present when the salary level and compensation scheme are enhanced, even with an effective communication climate.

Hung et al. (2018) reported that the interaction between job stress and communication climate significantly influences turnover intention. Kim and Stoner (2008) noted that role stress has a positive influence on turnover intention. However, a supportive environment moderates the influence of role stress on turnover intention. In other words, the influence of job stress on turnover intention is moderated by communication climate. The empirical results support H10.

Regarding mediation effects, Hung et al. (2018) studied the relationships between organizational climate, organizational identification, and turnover intention among life insurance

salespeople. The results showed that organizational climate indirectly influences turnover intention with organizational identification as a mediator variable. A positive organizational climate promotes organizational identification and reduces turnover intention. The empirical results support H11.

Lin (2012) suggested that through the mediation effects of burnout, employees increase their perceived level of work stress and also their turnover rate. Wen et al. (2020) examined the mediation effect of burnout on the relationship between role stress and turnover intention. The results show that burnout has an important mediation effect on the relationship between role stress and turnover intention. The empirical results support H12.

To summarize, of the 12 hypotheses proposed in this study, H2, H5, H8, and H9 were not supported by the findings. This means that, in the real estate brokerage industry, the communication climate and job stress do not influence turnover intention, and the communication climate does not moderate the influence of job stress on burnout nor the influence of burnout on turnover intention. In practice, when job stress-induced burnout occurs, employees choose not to retain their position regardless of how excellent the communication climate is. Moreover, when employees' potential cannot be met because of job stress, their work efficiency and attitudes are negatively affected. Turnover intention occurs when an employee communicates in a relatively reserved and conservative manner as well as when their morale is lower than the organization's communication climate. A feature of the real estate brokerage industry is the communication climate failing to moderate burnout-induced turnover intention, even when higher salaries and better rewards are offered.

Conclusions and recommendations

This study examined real estate brokers' turnover intention by using a multi-level model consisting of organizational variables (organizational identification) and individual variables (job stress, burnout, salary level). Organizational identification and burnout were assigned as mediator variables, while communication climate was assigned as a moderator variable.

Theoretical implications. This study examined the influences of organizational variables (communication climate, organizational identification) and individual variables (job stress, burnout, salary level, turnover intention) on real estate brokers' turnover intention. The empirical results supported the hypotheses that predicted that the influence of communication climate on turnover intention was mediated by organizational identification. Moreover, the results supported the hypotheses stating that burnout and communication climate mediated the influence of job stress on turnover intention. This study differed from past studies because most prior studies focused on the antecedents that affect turnover intention but rarely focused on the process of turnover. Additionally, this study employed the moderated mediation approach in multi-level HLM to effectively mitigate the bias that exists in traditional analysis methods.

Practical implications. First, improving the communication climate is conducive to promoting organizational identification and thereby indirectly reducing turnover intention. Real estate business management should communicate with and express concern toward their employees. Management must understand employees' actual demands and provide assistance that allows them to understand and adapt to their work, thus lowering their turnover intention.

Next, the influence of burnout on turnover intention is moderated by communication climate. Employees who feel

fatigued or miserable in their work are more likely to develop negative attitudes that increase their turnover intention. Real estate business management should actively interact and communicate with their employees and allow them to suitably express their true opinions and feelings, thus improving employee cohesion. Consequently, the employees will increase their focus on their work, thus diminishing the impacts of burnout on turnover intention.

Third, job stress indirectly influences turnover intention through burnout. Lee and Akhtar (2007) suggested that management should allocate suitable work tasks based on an employee's personality. Measures for improving employees' stress management skills include practicing effective management, reinforcing internal communication and coordination mechanisms, and providing professional consultation and guidance to employees. Consequently, employees will strengthen their mental resilience, overcome stress, and maintain physical-mental balance. Additionally, fostering an excellent organizational culture can reduce job stress and turnover intention. Salary level had a positive influence on turnover intention. Employees are likely to develop negative attitudes toward their work when the effort they give does not align appropriately with the compensation they receive. Measures should be taken to reduce employees' perception that their efforts and compensation are imbalanced so as to reduce their turnover intention.

Limitations and suggestions for future research

The participants herein were real estate brokers who are mainly engaged in transactions concerning pre-owned houses, which is a limitation of this study. Therefore, the conclusions may differ from the results obtained from using a sample of real estate agents who sell presale houses. Furthermore, the relationship between the participants' demographic information (gender, tenure, and education level) and the variables may be different, which also presents a limitation. Employees generally consider the robustness of a company's organizational system (i.e., HR planning and management, recruitment and training) as well as its compensation and benefits scheme (i.e., compensation, retirement, bonus shares for employees, etc.) when planning their careers as this safeguards their employment stability. Furthermore, whether the influence of job stress or burnout on turnover intention is moderated by salary level requires further research. Future studies can include organizational variables such as performance appraisals in addition to reward and punishment schemes (e.g., promotions, demotions, salary raises, salary deductions) to more fully examine the influence of organizational variables on individual variables.

Data availability

The datasets generated during and/or analyzed during the current study are available from the corresponding author on reasonable request.

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Conceptualization, Chun-Chang Lee and Wen-Chih Yeh; Methodology, Chun-Chang Lee; Validation, Zheng Yu; Formal analysis, Yu-Ru Zheng and Wen-Chih Yeh; Investigation, Wen-Chih Yeh; Writing—review & editing, Chun-Chang Lee and Yu-Ru Zheng.

Competing interests

The author declares that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

Ethics approval

This study was granted an exemption from requiring ethics approval. The survey objects of this study are house brokers. We personally went to the branches of each agency company to explain our intention and obtain the consent of the store manager. It is also approved by the brokers to fill in the answers. This study does not involve sensitive ethical issues, so there is no need to apply for review by relevant academic ethics committees.

Informed consent

Consent to participate: Informed consent was obtained from all the participants. Consent for publication: All the participants consented to submit findings for publishing purposes.

Additional information

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