

Struggling in a Man's World: Moderated and Mediation Model for Women to Stay in the Logistics Industry

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Technological advancements have transformed the nature of work, attracting more women to challenging industries such as the logistics industry. Despite this technological advancement and progress in promoting gender equality, achieving gender parity in this industry remains stagnant. Using the extended self-determination theory, this study explores new mediating and moderating variables to identify factors influencing female employee retention in the logistics industry in Malaysia. Based on a quantitative approach and purposive sampling, 278 responses were collected from women in the logistics industry through online surveys. Most direct hypotheses were supported, and significant mediation and moderation effects were found. In addition to contributing to the body of knowledge on women in logistics, the findings provide insights for managers by highlighting the importance of meaningful policies to ensure female employee retention in the logistics industry and support SDG 5 to promote equal gender opportunities.

KEYWORDS

- ~ Women in logistics
- ~ Intention to stay
- ~ Self-determination theory
- ~ Justice
- ~ Work-life conflict

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1. INTRODUCTION

The evolution of the maritime industry is transforming logistics and supply chain practices, indicating that industry players must adapt to current requirements to become a more significant link in the logistics chain (Panayides & Song, 2013). The challenges and trends in maritime are uniquely integrated with global logistics and supply chain management. Seaports, as major institutions in the maritime industry, are considered a fundamental part of the logistics sector (Salleh et al., 2024). The transportation and logistics sector is recognized as male-dominated due to its dirty, physically demanding, and exhausting nature (Maloni et al., 2019), which has traditionally been considered non-traditional for female employees, resulting in only a limited number of women willingly pursuing a career in this challenging and dynamic field (Sukri et al., 2024). Technological advancements in recent years have transformed the nature of work, attracting more women to the industry as machines and systems replace manual and repetitive tasks. However, achieving gender parity in this industry remains stagnant (Kafa et al., 2023). Despite progress in promoting gender equality across various sectors, a persistent discrepancy between men and women continues in male-dominated fields (Madsen et al., 2023; Yaşar Dinçer and Yirmibeşoğlu, 2024). Currently, the logistics and transportation industry faces gender bias, with only 35% of the workforce being female, despite their high competencies (Vo et al., 2023). Numerous obstacles remain, including discrimination and injustice in the form of limited career advancement (Maloni et al., 2019) and lower salaries compared to male counterparts (Ruel and Jaegler, 2021).

The nature of the industry and the complexity of the global supply chain require the workforce in this sector to work continuously every day, leading to work-life conflict for female employees who are married or have families. Women are frequently acknowledged as primary caretakers (Ruel and Fritz, 2021), experience work-family conflicts (Vo et al., 2023), and are pressured by the community to prioritize family over career (Vo et al., 2021). The United Nations advocates the Fifth Sustainable Development Goal (SDG5) to address gender inequality by promoting the idea of “Achieve gender equality and empower all women and girls.” Nonetheless, an effective approach for female managers to pursue or leave personal careers remains unavailable, especially in male-dominated industries (Vo et al., 2023). Existing studies on supply chain management also aim to support SDG5 implementation from a social science perspective (Fritz et al., 2021).

Gender diversity in male-dominated industries remains a constant topic, with numerous studies and academic research conducted. Nevertheless, the issue persists, highlighting the need for further investigation to address emerging opportunities and challenges for more effective solutions (Akbari et al., 2024). According to Kafa et al. (2023), the supply chain industry will continue to grow, making recruiting and retaining the right workforce crucial to avoid a talent shortage (Maloni et al., 2017). Certain supply chain management fields struggle to retain their workforce (Chen et al., 2019), such as the maritime industry, which experiences the highest gender inequality. Prior scholars (Fernandes et al., 2023; Larson, 2020) have found that gender imbalance is detrimental to logistics performance and has a significant impact on corruption. Recognizing the importance of gender equality in the logistics industry and the potential of gender diversity to reduce the talent gap, many multinational companies are beginning to recruit more women (Kafa et al., 2023). DHL actively supports gender diversity and does not tolerate discrimination or violence based on gender (Fernandes et al., 2023). Based on this, the study found it justified to address how to retain the current women workforce in the logistics industry.

While previous scholars have addressed the issue of female employees' intention to stay, most studies have focused on other sectors, such as the hospitality industry (Calinaud et al., 2021), rather than the transportation and logistics industry (Sukri et al., 2024). There is also limited research aimed at thoroughly understanding women's intention to stay in the logistics industry (Azlin et al., 2023). Using the Delphi method (Kafa et al., 2023) can reveal the role of human capital, as well as individual and interpersonal factors, in career advancement in supply chain management. Nevertheless, Kuvaas et al. (2017) found that intrinsic and extrinsic motivations are significant contributing factors to turnover intention. Maloni et al. (2019) also found that job satisfaction negatively impacts turnover intention. Due to the unique nature of the industry, employees' job fit with the nature of the work may play a significant role in creating job satisfaction. Moreover, although work-life conflict is common among women, its role in intrinsic motivation and work-life balance for women in logistics has been largely neglected. Additionally, individual behaviors may not be fully explained by conventional intrinsic and extrinsic motivations (Haider et al., 2024).

To address this issue, the current study applied self-determination theory (SDT), which includes both intrinsic and extrinsic motivations, and extended SDT by incorporating work-life conflict, work-life balance, personal job fit, and job satisfaction to identify the factors contributing to female employees' intention to stay in the logistics industry. To provide better explanatory power, the study extended the SDT model by introducing mediators and moderators in the research framework. Most social science researchers integrate mediators and moderators to clarify the interrelationships between various factors (Hassan et al., 2023). Specifically, the present study introduced intrinsic motivation and job satisfaction as sequential mediators. It also examined the moderating effect of organizational justice on the relationship between job satisfaction and women's intention to stay in the logistics industry. The findings would help logistics managers develop more gender-diverse policies to retain women employees in the industry while supporting SDG5.

2. LITERATURE REVIEW

2.1. Self-Determination Theory

Self-determination theory (SDT), developed by Ryan and Deci (2017), illustrates the relationship between motivation and satisfaction, showing that humans are driven to enhance and fulfill personal satisfaction. This macro theory includes intrinsic and extrinsic motivations and has been successfully applied in various domains, such as parenting, education, healthcare, sports and physical activities, psychotherapy, virtual worlds, and work motivation and management (Deci et al., 2017). Previous studies have demonstrated the effectiveness of SDT in exploring relationships across these fields, which encouraged the present study to apply and extend the theory to understand the determinants of women's intention to remain in the logistics industry.

2.2. Work-Life Conflict

Work-life conflict refers to inter-role conflict or the incompatibility between work and private life responsibilities (Greenhaus & Beutell, 1985). As a result, fulfilling both roles becomes more difficult, leading to conflict in employee motivation. The demand for continuous working hours in the logistics industry creates a conflict between women's family obligations as mothers or wives and their job roles. Aczel et al. (2021) explained that this conflict arises from the requirements of different roles and responsibilities drawing on a single source of physical and mental capabilities. Furthermore, employees often feel more stressed and dissatisfied when their job demands clash with their obligations to their families or themselves. This conflict may lead to a decline in intrinsic motivation because employees overwhelmed by conflicting demands are less likely to engage wholeheartedly in their work tasks.

The logistics industry also involves continuous activities without breaks between operations, which may conflict with the roles of women as mothers, wives, and daughters due to their responsibilities as officers managing logistics activities. Consequently, work-life conflicts may arise, impacting women's intrinsic motivation. Previous studies have shown that work-life conflict negatively affects employees' intrinsic motivation (Pratame and Supartha, 2022). Dorenkamp and Ruhle (2019) also found that work-life conflict negatively influences work-life balance. Therefore, this study proposes that:

H1: Work-life conflict is negatively associated with intrinsic motivation.

H2: Work-life conflict is negatively associated with work-life balance.

2.3. Intrinsic Motivation

Intrinsic motivation is defined as engaging in an activity for inherent satisfaction rather than for specific outcomes (Ryan and Deci, 2000). Intrinsically motivated individuals act for the challenge or pleasure rather than for external rewards or pressures. In the present study, intrinsic motivation refers to workers' pursuit of their careers for inherent enjoyment, interest, or satisfaction rather than for extrinsic rewards or pressures. Employees who feel a sense of purpose in their work are more intrinsically motivated. A stronger emotional connection to their work and understanding how their roles align with organizational objectives increase employees' enthusiasm and dedication. Women who are intrinsically motivated are willing to contribute personal effort to organizations in achieving collective goals, which can enhance personal job satisfaction. Women can also perform tasks traditionally carried out by men, which can further intrinsically motivate them and increase personal job satisfaction. Previous studies (Ayalew et al., 2019; Gheitani et al., 2019) have demonstrated that intrinsic motivation is positively related to job satisfaction. Accordingly, the present study hypothesized that:

H3: Intrinsic motivation is positively associated with job satisfaction.

2.4. Work-Life Balance

Work-life balance refers to managing professional work, family responsibilities, and other personal activities to prevent overlap and achieve equilibrium between work and personal life (Semlali & Hassi, 2016). It involves integrating employment with other life domains, which is relevant to all employees (Au and Ahmed, 2015) in terms of managing both work-related and personal obligations. Therefore, optimal work-life balance is crucial for employee welfare, especially for women (Rawal, 2023). Employees who perceive a positive work-life balance are more likely to experience job satisfaction and feel valued and supported by their employers. As a result, they tend to show greater commitment and loyalty to the workplace. A good work-life balance allows workers to fulfill both personal and professional obligations, which is essential for their well-being. Effectively managing work and personal life can significantly increase job satisfaction for employees in

the logistics industry, where long hours and heavy workloads are common. Previous research has found that work-life balance positively affects job satisfaction (Aloulou et al., 2023). The present study posited that:

H4: Work-life balance is positively associated with job satisfaction.

2.5. Extrinsic Motivation

Extrinsic motivation refers to performing an activity for its instrumental value rather than for the enjoyment of the activity itself (Ryan & Deci, 2000). In the current study, extrinsic motivation refers to employees' perceptions that their personal efforts are rewarded, which can lead to increased job satisfaction and a more positive perception of the workplace. Rewards can be offered in forms beyond monetary compensation. In particular, a favorable work environment and recognition for completing challenging tasks can serve as external factors that enhance job satisfaction. The logistics sector is widely recognized for its highly challenging working environment, where optimal working conditions and adequate moral support from managers can improve job satisfaction among women in the industry. Employees in the logistics industry often face difficult work conditions and demanding schedules, making these external motivators crucial for enhancing job satisfaction. Yasin et al. (2020) highlighted the positive impact of extrinsic motivation on job satisfaction. Therefore, this study postulated that:

H5: Extrinsic motivation is positively correlated with job satisfaction.

2.6. Personnel Job Fit

Personnel job fit is defined as the congruence between job demands and the required skills, knowledge, and abilities (Werbell & Gililand, 1999). In this study, personnel job fit refers to the assignment of tasks that match employees' competencies and skills to improve work performance. Employers should consider the specific skills and competencies required for each task before assigning it to employees with the necessary qualifications. As a result, increased productivity and job satisfaction can be observed among employees. In the logistics industry, where tasks can be physically demanding and require specialized skills, a good person-job fit leads to greater job satisfaction. When employees feel their roles align with their abilities and their skills are fully utilized, they are more likely to feel accomplished and fulfilled at work. Therefore, managers should assign suitable jobs to women, as women can outperform their male counterparts in the logistics industry, particularly in effective negotiations and documentation work. Dhir and Dutta (2020) also found that personnel job fit positively influences job satisfaction. The following hypothesis was formulated:

H6: Personnel job fit is positively correlated with job satisfaction.

2.7. Organisational Justice

Organizational justice refers to treating employees in a just and fair manner (Greenberg, 1990). This study defines organizational justice as employees' perceptions of equal treatment from employers, including impartial decision-making and appropriate compensation for work contributions, which increase job satisfaction. Numerous studies have highlighted that women have been unfairly treated in this industry (Maloni et al., 2019). For women in the logistics industry, which is traditionally male-dominated, being given equal opportunities for promotion by management improves their job satisfaction. When employees perceive fair and equitable treatment, it boosts morale and reinforces their commitment to the organization. Maloni et al. (2019) identified unfair treatment of women in the logistics industry, such as lower salaries and career barriers. Karkoulian et al. (2016) also examined organizational justice through three dimensions: distributive, procedural, and interactional. Gori et al. (2020) emphasized the positive influence of organizational justice on job satisfaction. Thus, the present study proposes that:

H7: Organizational justice is positively correlated with job satisfaction.

2.8. Job Satisfaction

Job satisfaction is an employee's positive emotional state experienced while performing a job, reflecting the degree of job satisfaction (Spector, 1997). It can depend on employees' assessment of their opportunities, relationships with colleagues and managers, and the rewards they receive from their jobs, including pay, promotion, and working conditions (Bayrakdar & King, 2022). Employees with higher job satisfaction are more likely to remain with their current employers because they feel valued, which enhances job loyalty and commitment. Emotion is closely associated with job satisfaction for women and can significantly impact future behavior (Eneizan et al., 2021). When women experience job satisfaction due to fair compensation, recognition, opportunities for skill utilization, and a supportive work environment, they are more

motivated to view their current roles positively. Satisfied employees often feel a sense of belonging and commitment to their organization, reinforcing their intention to stay. Previous studies have also demonstrated that job satisfaction positively impacts the intention to stay (Thakur and Arora, 2022). This study proposes that:

H8: Job satisfaction is positively associated with the intention to stay.

2.9. Mediation

Mediation analysis plays an essential role in model enhancement and theoretical advancement (Halimi et al., 2022). The current study aimed to improve the predictive power of SDT by incorporating job satisfaction as a mediator in the relationship between extrinsic motivation, personnel job fit, organizational justice, and intention to stay. Additionally, intrinsic motivation and job satisfaction were included as sequential mediators in the association between work-life conflict and intention to stay. Work-life balance and job satisfaction were also examined as sequential mediators in the relationship between work-life conflict and intention to stay.

Previous research has shown that extrinsic motivation, personnel job fit, and organizational justice positively influence job satisfaction (Dhir & Dutta, 2020; Gori et al., 2020; Yasin et al., 2020). Job satisfaction has also been demonstrated to positively impact intention to stay (Thakur & Arora, 2022). Women employees with high extrinsic motivation experience greater job satisfaction, leading to a higher intention to stay in the logistics and transportation industry. Furthermore, a better job fit with existing skills enhances job satisfaction. Thus, the complex relationships among these variables suggest that job satisfaction may mediate the associations between extrinsic motivation and intention to stay, as well as between personnel job fit and intention to stay. Existing literature also provides evidence that extrinsic motivation and personnel job fit positively influence intention to stay (Chang et al., 2021; Rai et al., 2019). Therefore, the present study proposed the following:

H9: Job satisfaction positively mediates the relationship between extrinsic motivation and intention to stay.

H10: Job satisfaction positively mediates the relationship between personnel job fit and intention to stay.

Ayalew et al. (2019) and Gheitani et al. (2019) confirmed the positive relationship between intrinsic motivation and job satisfaction. Aloulou et al. (2023) also confirmed the association between work-life balance and job satisfaction. At the same time, job satisfaction was shown to positively influence intention to stay (Li et al., 2020; Thakur & Arora, 2022). Aboobaker et al. (2020) found that work-life conflict was negatively associated with intention to stay, suggesting that the mediators (intrinsic motivation, work-life balance, and job satisfaction) are causally linked to intention to stay. The following hypotheses were proposed:

H11: Intrinsic motivation and job satisfaction positively and sequentially mediate the relationship between work-life conflict and intention to stay.

H12: Work-life balance and job satisfaction positively and sequentially mediate the relationship between work-life conflict and intention to stay.

2.10. Moderation

Ngah et al. (2022a) explained that introducing a moderator into a model increases its complexity and enhances its predictive power. The moderating variable was included in this study due to mixed prior findings. Specifically, organisational justice was incorporated as a moderating factor in the relationship between job satisfaction and intention to stay (see Figure 1). Previous researchers found that job satisfaction positively influenced intention to stay (Thakur & Arora, 2022), but satisfaction did not necessarily ensure that individuals would remain (Ngah et al., 2023b) or demonstrate loyalty (Liao et al., 2017). Female employees in the logistics and transportation industry may also perceive injustice through lower salaries and limited career advancement, even if they are satisfied with their current jobs. Women might switch to another industry that values talent and leadership. Furthermore, organisational justice was found to positively influence intention to stay (Jang et al., 2023). Therefore, this study postulated:

H13: Organisational justice positively moderates the relationship between job satisfaction and intention to stay, such that the relationship between job satisfaction and intention to stay is stronger when organisational justice is high.

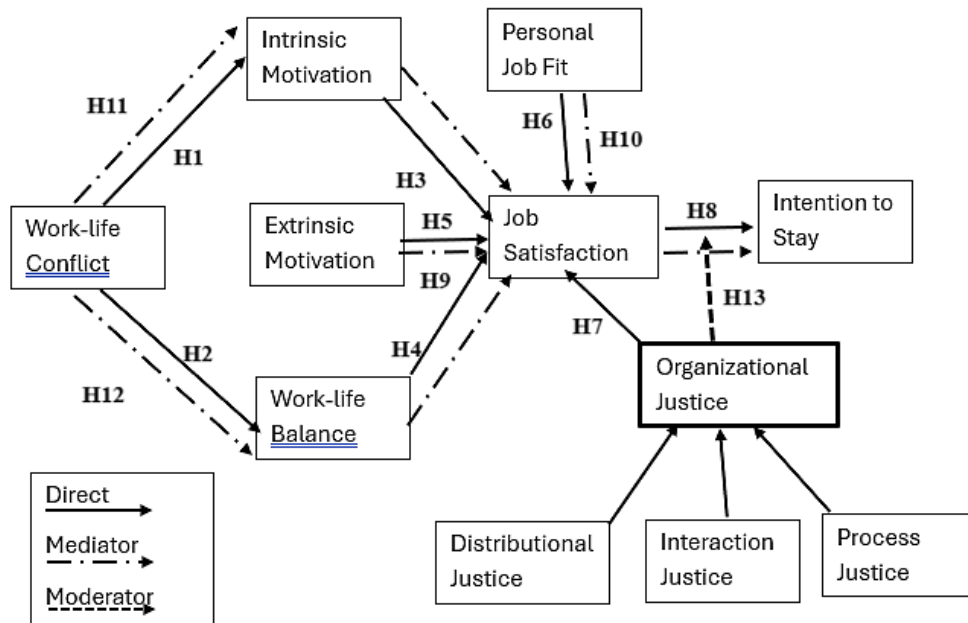


Figure 1. The Current Research Framework

3. METHODOLOGY

All measurement items were adopted from established literature in the field (see Appendix 1). Specifically, intrinsic and extrinsic motivations were adopted from Kuvaas et al. (2017), job satisfaction from Maloni et al. (2019), work-life balance from Fontinha et al. (2018), work-life conflict from Frone and Yardley (1996), and personal-job fit from Saks and Ashforth (2002). Organisational justice was measured through three dimensions – distributive, procedural, and interactional – as lower-order constructs (Karkoulian et al., 2016; Ngah et al., 2024). Different anchor scales were used to measure exogenous variables (five-point Likert scale) and endogenous variables (seven-point Likert scale), as suggested by Karkoulian et al. (2016) and Ngah et al. (2024), to reduce common method bias through procedural methods.

This study addressed the issue of work-life conflict among women employees in the logistics and transportation industry, focusing on married women or those with families. Purposive sampling was used to recruit qualified respondents (Jais & Ngah, 2024; Ngah et al., 2022b) via online surveys to reach a wider geographical area. Multiple channels were employed to increase the response rate. The survey link was shared through the researcher’s Facebook, WhatsApp, and Instagram accounts to encourage voluntary participation. A filter question – “I am a married woman and working in the logistics and transportation industry” – was included to ensure response validity (Albtoosh & Ngah, 2022; Ngah et al., 2021a). Additionally, human resource managers in various logistics companies were approached to share the survey link with qualified respondents within their organizations, which helped ensure a sufficient sample size. A total of 314 responses were collected, with 278 valid responses retained for full analysis after screening. Responses with high missing values, straight-line answers, or from unmarried women were excluded.

According to Hair et al. (2017) and Ngah et al. (2021), G*Power software is recommended to ensure the minimum sample size is met. Gefen et al. (2011) and Rahi et al. (2022) recommended a minimum sample size of 92 for this study, with 80% power, a medium effect size, a p-value of 0.05, and five predictors. The 278 valid responses indicated that sample size was not an issue in this study. Most respondents were under 33 years old (47.8%), married (86.3%), and had at least a degree (49.3%). Additionally, 73.4% of respondents were Malays, with incomes between MYR 4,001 and 9,000 (67.6%). Respondents also had an average of 5 to 10 years of managerial experience (56.1%). Table 1 presents the respondents’ profiles.

Characteristics	Frequency	Percent (%)
Age		
Less than 33 years	133	47.8
34-41 years	85	30.6
42-49 years	38	13.7
More than 50 years	22	7.9
Status		
Married	240	86.3
Divorce	38	13.7
Qualification		
Diploma	78	28.1
Degree	137	49.3
Post-graduate	63	22.7
Race		
Malay	204	73.4
Chinese	47	16.9
Indian	19	6.8
Other	8	2.9
Income		
Less than MYR 4000	41	14.7
MYR 4001-MYR 9000	188	67.6
MYR 9001 and above	49	17.6
Experience		
Less than 5 years	38	13.7
5 years-10 years	157	56.5
More than 10 years	83	29.9
Position		
Executive	103	37.1
Manager	156	56.1
Director	19	6.8

Table 1. Respondent Profile

3.1. Analyses and Findings

The current study used the Statistical Package for the Social Sciences (SPSS) software to describe the respondents' profiles. The study hypotheses were tested using structural equation modeling with the PLS-SEM approach in SmartPLS software (Ringle et al., 2022). SmartPLS is appropriate for this study due to its predictive capabilities, the presence of higher-order constructs with formative measurement, and high model complexity (Becker et al., 2023; Ngah et al., 2022b). A research model with more than seven constructs is considered complex (Hair et al., 2017).

3.2. Common Method Bias

According to Podsakoff et al. (2012) and Tuan Mansor et al. (2022b), common method bias (CMB) should be addressed when data are collected from a single source. In this study, the full collinearity test was conducted to address this potential issue (Kock, 2015; Rashid et al., 2022). Table 2 shows that all VIF values do not exceed 3.3, indicating that CMB is not an issue.

Construct	PJF	WLB	Dist	WLC	Inter	Instr	Proc	JS	Ext	Intention
VIF	1.832	2.329	3.699	1.165	3.277	2.367	4.311	2.388	1.058	1.474

Table 2. Full Collinearity Testing

3.3. Measurement Model

The present study used a two-stage approach to test the study hypotheses: the measurement model and the structural model. Two types of validity must be ensured for the measurement model. Specifically, convergent validity is established when the loading value exceeds 0.708, the average variance extracted (AVE) is equal to or greater than 0.5, and the composite reliability exceeds 0.7 (Hair et al., 2019). Table 3 shows that all convergent validity requirements are met.

Construct	Items	Loading	CR	AVE
Extrinsic	Ext1	0.782	0.901	0.696
	Ext2	0.849		
	Ext3	0.879		
	Ext4	0.823		
Intrinsic	Instr1	0.804	0.935	0.706
	Instr2	0.845		
	Instr3	0.877		
	Instr4	0.883		
	Instr5	0.860		
	Instr6	0.766		
Intention	Int1	0.938	0.959	0.887
	Int2	0.943		
	Int3	0.945		
Job Satisfaction	JS1	0.944	0.953	0.870
	JS2	0.933		
	JS3	0.922		
Personal Job Fit	PJF1	0.808	0.893	0.677
	PJF2	0.847		
	PJF3	0.854		
	PJF4	0.780		
Work-life Balance	WLB1	0.882	0.905	0.760
	WLB2	0.878		
	WLB3	0.855		
Work-life Conflict	WLC1	0.932	0.976	0.873
	WLC2	0.926		
	WLC3	0.951		
	WLC4	0.921		
	WLC5	0.936		
	WLC6	0.938		
Distributional Justice	Dist_Just2	0.942	0.943	0.805
	Dist_Just3	0.913		
	Dist_Just4	0.859		
	Dist_Just5	0.871		
	Dist_Just6	0.871		
Interaction Justice	Int_just2	0.866	0.948	0.753
	Int_just3	0.812		
	Int_just4	0.892		
	Int_just5	0.878		
	Int_just6	0.853		
	Int_just7	0.902		
	Int_just8	0.871		
Process Justice	Proc_Just1	0.863	0.950	0.825
	Proc_Just2	0.930		
	Proc_Just5	0.911		
	Proc_Just6	0.928		

Table 3. Convergent Validity

3.4. Formative Measurement

Organizational justice was measured as a Type II higher-order construct (reflective-formative). Becker et al. (2023) stated that Type II constructs should be used when the dimensions of the higher-order construct are not highly correlated and represent different concepts. Ngah et al. (2021b) used a three-stage approach for the formative measurement of convergent validity by implementing a single global item to conduct redundancy analysis, variance inflation factor (VIF) assessment, and significance testing of weights (Ngah et al., 2023a). Table 4 shows that the convergent validity value exceeds 0.7, the VIF value does not exceed 5, and the t-values are significant, establishing convergent validity for the formative measurement model.

Construct	CV	weight	T-value	VIF
Distribution	0.864	0.308	31.087	3.490
Interaction		0.446	51.693	3.156
Procedural		0.321	32.356	3.921

Table 4. Convergent Validity for the Formative Higher-Order Construct

3.5. Discriminant Validity

Discriminant validity was affirmed when the heterotrait-monotrait (HTMT) values did not exceed 0.90 (Franke and Sarstedt, 2019). The HTMT values for all constructs in this study were below 0.90 (see Table 5), confirming that the discriminant validity requirement was met.

Construct	Dist_Just	Ext	Instr	Int_just	Int	JS	PJF	Proc_Just	WLB	WLC
Dist_just										
Ext	0.056									
Instr	0.179	0.064								
Int_just	0.832	0.047	0.136							
Int	0.050	0.165	0.446	0.064						
JS	0.348	0.060	0.705	0.302	0.350					
PJF	0.327	0.134	0.549	0.318	0.520	0.615				
Proc_Just	0.891	0.055	0.192	0.860	0.030	0.350	0.284			
WLB	0.217	0.171	0.771	0.144	0.457	0.710	0.577	0.234		
WLC	0.116	0.036	0.324	0.070	0.112	0.292	0.193	0.046	0.353	

Table 5. Discriminant Validity (HTMT)

3.6. Structural Model

Multicollinearity was assessed to ensure that collinearity was not an issue before evaluating the structural model. Table 6 shows that all VIF values for each construct are below 5 (Hair et al., 2019), indicating that collinearity is not a significant concern in this study. A bootstrapping technique with 5,000 resamples was also conducted. The results revealed that seven out of eight direct hypotheses were supported. Specifically, the findings demonstrated a negative relationship between work-life conflict and intrinsic motivation ($WLC \rightarrow Instr, \beta = -0.307, p < 0.001$), supporting H1. A negative association was also found between work-life conflict and work-life balance ($\beta = -0.320, p < 0.001$), supporting H2. Intrinsic motivation ($\beta = 0.341, p < 0.001$), work-life balance ($\beta = 0.259, p < 0.001$), personnel job fit ($\beta = 0.217, p < 0.05$), and organizational justice ($\beta = 0.155, p < 0.05$) were positively correlated with job satisfaction, supporting H3, H4, H6, and H7. Meanwhile, there was no significant relationship between extrinsic motivation and job satisfaction ($\beta = -0.005, p = 0.465$), which did not support H5. The analysis also revealed a positive relationship between job satisfaction and intention to stay ($\beta = 0.478, p < 0.001$), supporting H8.

The effect size and predictive power were examined to enhance the explanatory power of the model. Cohen (1988) recommended values of 0.02, 0.15, and 0.35 as small, medium, and large effect sizes, respectively. Table 6 shows that all supported hypotheses have a small effect size on their respective relationships. In addition, Shmueli et al. (2019) explained that strong predictive power (PLS-predict) is confirmed when all item differences (PLS-LM) do not exceed the predictive relevance value. Moderate predictive power is achieved when most item differences do not exceed the predictive relevance value, while low predictive power is established when only a minority of items have lower values. Predictive power cannot

be affirmed when all item differences exceed the predictive relevance value. Table 7 shows that the predictive power for intention to stay, job satisfaction, and work-life balance is strong, while moderate predictive power exists for intrinsic motivation.

Preacher and Hayes (2008) suggested bootstrapping the indirect effect to test mediation. Both the lower limit (LL) and upper limit (UL) should not contain zero, as its presence would indicate an insignificant mediation effect. The results (see Table 6) showed that job satisfaction did not significantly mediate the relationship between extrinsic motivation and intention to stay ($\beta = -0.002, p = 0.464$), which did not support H9. In contrast, job satisfaction significantly mediated the association between personnel job fit and intention to stay ($\beta = 0.104, p < 0.001$), supporting H10. Furthermore, the results revealed that intrinsic motivation and job satisfaction ($\beta = -0.050, p < 0.05$) and work-life balance and job satisfaction ($\beta = -0.040, p < 0.05$) sequentially mediated the relationship between work-life balance and intention to stay, supporting H11 and H12 (see Table 6). Additionally, the findings showed that the association between job satisfaction and intention to stay ($\beta = 0.169, t = 2.018; LL = 0.024, UL = 0.296, p < 0.05$) was significantly moderated by organizational justice, supporting H13. Dawson's plot (see Figure 2) was produced to illustrate the graphical results supporting the moderation effect of job satisfaction on the relationship between organizational justice and intention to stay.

Hypothesis	Relationship	Beta	SE	T value	P values	CILL	CIUL	VIF	F ²
H1	WLC -> Instr	-0.307	0.066	4.618	0.000	-0.425	-0.206	1.000	0.104
H2	WLC -> WLB	-0.320	0.065	4.925	0.000	-0.425	-0.207	1.000	0.114
H3	Instr -> JS	0.341	0.104	3.279	0.001	0.162	0.503	2.011	0.131
H4	WLB -> JS	0.259	0.077	3.371	0.000	0.129	0.396	2.041	0.077
H5	Ext -> JS	-0.005	0.058	0.089	0.465	-0.093	0.092	1.047	-
H6	PJF -> JS	0.217	0.083	2.613	0.005	0.094	0.360	1.498	0.065
H7	Justice -> JS	0.155	0.075	2.081	0.019	0.037	0.291	1.104	0.053
H8	JS -> Intention	0.478	0.123	3.897	0.000	0.267	0.693	1.704	0.206
H9	Ext->JS-> Intention	-0.002	0.027	0.090	0.464	-0.040	0.047		
H10	PJF->JS-> Intention	0.104	0.035	3.003	0.001	0.047	0.157		
H11	WLC -> Instr -> JS -> Intention	-0.050	0.026	1.891	0.030	-0.098	-0.015		
H12	WLC -> WLB -> JS -> Intention	-0.040	0.020	2.005	0.023	-0.079	-0.013		
H13	Justice x JS -> Intention	0.169	0.084	2.018	0.022	0.024	0.296		

Table 6. Hypothesis Testing

Construct	Item	Q ² predict	PLS-SEM_RMSE	LM_RMSE	PLS-LM	Decision
Intrinsic	Instr1	0.052	0.788	0.795	-0.007	Moderate
	Instr2	0.062	0.732	0.755	-0.023	
	Instr3	0.060	0.791	0.803	-0.012	
	Instr4	0.087	0.730	0.750	-0.020	
	Instr5	0.052	0.727	0.770	-0.043	
	Instr6	0.041	0.891	0.874	0.017	
Intention	Int1	0.049	1.015	1.090	-0.075	Strong
	Int2	0.064	1.028	1.076	-0.048	
	Int3	0.043	1.045	1.090	-0.045	
Job Satisfaction	JS1	0.243	0.716	0.750	-0.034	Strong
	JS2	0.267	0.700	0.732	-0.032	
	JS3	0.207	0.792	0.809	-0.017	
Work-life Balance	WLB1	0.059	0.697	0.750	-0.053	Strong
	WLB2	0.069	0.730	0.748	-0.018	
	WLB3	0.075	0.689	0.722	-0.033	

Table 7. PLS Predict

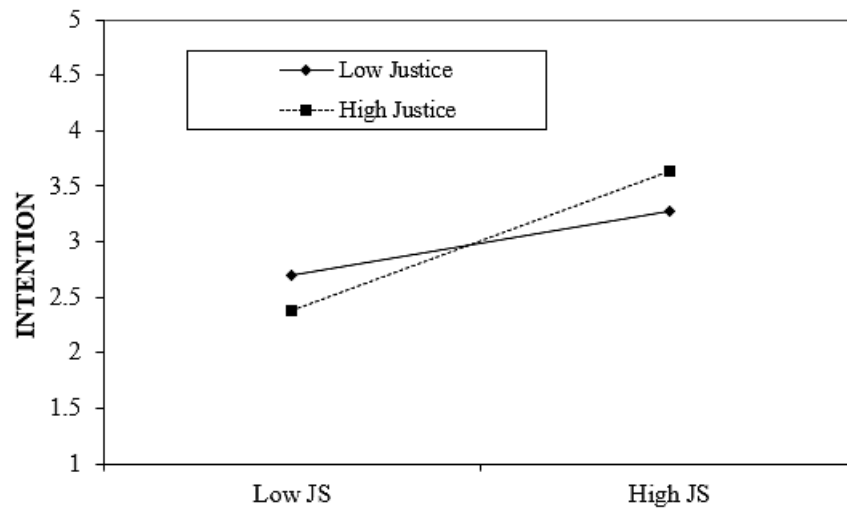


Figure 2. The Moderation Effect of Organisational Justice on the Relationship between Job Satisfaction and Intention to Stay

4. DISCUSSION

The current study found that work-life conflict negatively affected intrinsic motivation, indicating that individuals experiencing work-life conflict may feel less passion and fulfillment at work. Consequently, decreased job engagement and performance were observed, suggesting that work-life conflict also negatively impacts work-life balance (Dorenkamp and Ruhle, 2019). Additionally, the imbalance between work and personal life increased employees' stress and led to burnout. Employers should implement relevant policies that promote flexibility, support well-being initiatives, and encourage open communication to reduce employees' work-life conflict, especially among women, while protecting mental health. Employers can also motivate employees to thrive professionally and personally by fostering a supportive environment that values well-being and promotes a healthy work-life balance.

Intrinsic motivation was found to be positively associated with job satisfaction (Ayalew et al., 2019; Gheitani et al., 2019), suggesting that intrinsically motivated employees are more satisfied with their current jobs than those motivated by external rewards. As a result, a sense of fulfillment and engagement improved job satisfaction. Managers seeking to improve job satisfaction among women in the logistics industry should ensure that female employees perceive their jobs as essential and meaningful to the organization. In contrast, extrinsic motivation did not influence job satisfaction among women employees, which differed from Yasin et al. (2020). The findings suggest that the impact of extrinsic motivation on job satisfaction varies according to women's perceptions, even though it plays a role in driving employee behavior and commitment. Thus, employers could create a work environment that values both intrinsic fulfillment and external rewards by recognizing the complexities of extrinsic motivation and its relationship with job satisfaction to achieve higher satisfaction levels among women.

The present study demonstrated that work-life balance positively affected job satisfaction, consistent with previous findings (Aloulou et al., 2023) on the importance of work-life balance in job satisfaction by providing a supportive environment for achieving harmony between work and personal life. Specifically, employers can foster a motivated and satisfied workforce that contributes to employees' success and productivity. Managers should also be more understanding of women's roles outside the workplace and show greater consideration, which can lead to women appreciating managers and improving job performance, resulting in higher job satisfaction. Moreover, person-job fit was positively correlated with job satisfaction, aligning with previous literature (Dhir and Dutta, 2020). This positive association emphasizes the importance of matching employees' skills, abilities, and values to job requirements and responsibilities. Employers can foster a motivated and satisfied workforce, particularly among women, to positively contribute to organizational success by creating a conducive work environment where employees feel valued, engaged, and well-suited. Managers should assign jobs based on individual strengths and capabilities, as male and female employees possess different characteristics and competencies.

The present study found that organizational justice positively influenced job satisfaction (Gori et al., 2020). Therefore, employers can increase job satisfaction among women employees by implementing organizational justice practices that promote fairness and equity. A work environment where women feel valued, respected, and empowered contributes not only to individual well-being but also to increased productivity, engagement, and success within the sector. Fair treatment allows women to feel valued by the organization, which can boost personal commitment, job satisfaction, and performance. Furthermore, job satisfaction was shown to positively impact the intention to stay, consistent with prior

research (Li et al., 2020; Thakur and Arora, 2022b). Organizations can provide an inclusive and supportive environment for women employees in the logistics sector by prioritizing job satisfaction, organizational commitment, and gender-specific considerations. As a result, increased retention rates and a more diverse and resilient workforce in the logistics sector would be achieved.

Job satisfaction was tested as a mediating variable within the research framework to enhance the study's predictive power. The results showed that job satisfaction mediated the relationship between personnel job fit and intention to stay. The findings indicated that job satisfaction is an integral factor in determining female employee retention in the logistics sector. High personnel job fit, along with fair treatment and respect, also led to higher job satisfaction, which contributed to greater job commitment and intention to stay in the logistics sector. However, job satisfaction did not significantly mediate the relationship between extrinsic motivation and intention to stay. This result may be attributed to the unique challenges faced by women workers compared to their male counterparts in the logistics sector. Therefore, organizations should ensure an inclusive environment for female employee retention and engagement by addressing gender-specific needs, providing sufficient organizational support, and offering individual motivations.

Organizational justice moderated the relationship between job satisfaction and intention to stay. Dawson's plot developed in this study illustrated that the relationship was stronger when women employees perceived high organizational justice for their personal job efforts in the logistics industry. Thus, managers should avoid gender discrimination in the workplace. Nonetheless, differences in challenges faced, familial roles, and capabilities between genders persisted among female and male employees. Effective managers should recognize and provide fair treatment when assigning specific tasks suitable to a particular gender, without engaging in discriminatory practices in this challenging industry.

5. THEORETICAL CONTRIBUTIONS

This study contributed to the existing literature on female employees in the logistics industry in several ways. Specifically, it extended the SDT model by including personal job fit, work-life balance, and work-life conflict, confirming the SDT model's ability to explain retention behavior among women in the logistics industry. The study also examined intrinsic motivation, job satisfaction, and work-life balance as mediators within the model, verifying the role of these variables as mediators in the relationship between work-life conflict and intention to stay.

Because justice is fundamental in working conditions but has been largely overlooked in this context, this study also integrated organizational justice as a higher-order construct comprising the three dimensions of distributive, interactional, and procedural justice, serving as a moderator in the relationship between job satisfaction and intention to stay. Another significant contribution is the finding that organizational justice moderates the relationship between job satisfaction and intention to stay among women in the logistics industry. This provides a new direction for future research to introduce additional mediators and moderators to enhance explanatory power in addressing issues faced by women in the logistics industry.

6. PRACTICAL IMPLICATIONS

This study provided meaningful insights for logistics managers to refine current policies and regulations that support female employee retention when work-life conflict persists due to job demands. A mature and intelligent manager's deeper understanding is crucial to ensuring adequate career growth opportunities for women employees. Additionally, ongoing governmental support through relevant policies, such as longer and more flexible maternity leave, and understanding from family members are vital to helping women employees in logistics thrive in this challenging industry, which has different and higher demands than others. Ultimately, mutual understanding and continuous support from relevant stakeholders are key factors in retaining women employees not only in the logistics industry but also in other sectors with similar characteristics.

The current findings can be applied to organizations within the maritime industry due to its close relationship with the logistics sector. Managers in the maritime industry should address work-life conflicts by promoting higher intrinsic motivation and work-life balance, and by considering the relationships among intrinsic motivation, work-life balance, extrinsic motivation, personal job fit, and organizational justice in relation to job satisfaction to prevent a shortage of women employees. Furthermore, managers should understand how job satisfaction and organizational justice can increase women's intention to remain in the male-dominated maritime industry. Recognizing the challenges faced by female employees in the maritime sector can help managers develop more effective policies aligned with SDG 5 to achieve gender equality and empower all women.

7. CONCLUSION, STUDY LIMITATIONS, AND FUTURE DIRECTIONS

Gender imbalance persists in the logistics industry. This study identified the factors contributing to job satisfaction that influence women employees' intention to remain in the logistics sector. The study also confirmed the mediating effects of job satisfaction, work-life balance, and intrinsic motivation, as well as the moderating role of organizational justice within the SDT model. However, the study has several limitations due to its exclusive focus on variables within the SDT model, with personal job fit, work-life balance, work-life conflict, and organizational justice as moderators. Future researchers could examine additional variables, such as the use of artificial intelligence in job performance during the fourth industrial revolution, to assess their impact on women employees in this industry. Furthermore, the study is limited to women employees in Malaysia. Notably, differences exist between Malaysian culture and other national contexts regarding women's familial roles. Future scholars may need to make appropriate modifications to ensure the applicability of results in other settings.

CONFLICT OF INTEREST

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