

The Effect of Work-Life Balance on Employee Satisfaction Mediated by Work Motivation: Study among Malaysian Fire Officer in Sabah State

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Abstract

Fire and Rescue Department is a main rescue organization in Malaysia. In addition to firefighting, the department's tasks include rescue operations, fire safety, investigations, and many others. Recently, the media has focused heavily on major disciplinary problems that impact firefighter performance. The studies have attempted to explore this further by investigating the effect of work-life balance (WIPL, PLIW, and WPLE) on employee satisfaction mediated by work motivation. The idea behind the problem is rooted in Staines' (1980) spillover theory, which illustrates the effects of balancing multiple responsibilities. The study used a basic random sampling research method with a quantitative approach and focused on 300 firefighters in Sabah. This corresponds to the total sample size recommended by the Raosoft calculator. To get an accurate result of data sampling analysis, the data was collected using Google Form surveys and analyzed using SmartPLS 4.0 as an analysis tool. The study's findings demonstrated a strong correlation between WPLE and employee satisfaction and work motivation, with partial mediation accounting for the significant mediation relationship. Theoretically, it has improved and expanded the understanding of spillover theory. These findings benefit human resource management by helping management understand the impact of firefighter employment and providing information to policymakers.

Keywords: Work Life Balance, Employee Satisfaction, Work Motivation, Spillover Theory, Firefighters Malaysia

Introduction

The Fire and Rescue Department of Malaysia, operating under the Fire Services Act 1988, plays a vital role in protecting lives and property. Firefighters, however, face significant physical and psychological challenges that affect their mental health, job satisfaction, and social relationships (Duran et al., 2018; Stanley et al., 2015). In Sabah state, these issues are intensified by high workloads and limited resources, disrupting work-life balance and straining

personal connections (Eby et al., 2005; Mahmoud et al., 2020). Research links these imbalances to reduced productivity and negative workplace behaviors such as absenteeism and turnover (Laxmi, 2021). Rooted in spillover theory, which explains how experiences in one domain impact another (Bell & Rajendran, 2012), this study examines how work-life balance influences job satisfaction, with work motivation as a mediating factor, among firefighters in Sabah. The findings are significant for policymakers and organizational leaders, offering insights to design effective interventions and policies that enhance firefighter well-being and job satisfaction. This research supports efforts to create healthier, more resilient workplaces, enabling firefighters to better meet growing emergency demands while safeguarding their own well-being.

Literature Review

Work Life Balance (WLB)

Work family balance is another name for work life balance. (Hudson Resourcing, 2005). Vyas and Shrivastava (2017) mention that the phrase "work and family" is often used to refer to work-life balance. To put it another way, work-life balance is the ability for each individual to balance their personal and professional obligations while also fulfilling their roles as a spouse or parent (Alfatihah et al, 2021). Two ideas that create a very good work-life balance are the desire to achieve something and enjoy life (Bataineh, 2019). The work-life balance is crucial for organisation as it influences employee motivation, which in turn strengthens job commitment and in addition, work motivation and work-life balance are necessary (Shafee et al. 2020). From the statements of previous and recent researchers such as Jayasinggam et al. (2021) it can be concluded that the definition of WLB is the ability to fulfill both areas, which is a balance between commitment to the implementation of tasks (work area) and the need to fulfill responsibilities (life area), i.e. h. the family, without affecting any other area.

Employee Satisfaction

Employee satisfaction has been widely studied, especially in relation to organizational behavior and work design (Mustafa & Ali, 2019). Spector et al. (2003) describe satisfied employees as those who are committed, perform well, and contribute to company success. Hoboubi et al. (2017) define it as having clear direction and positive behavior toward one's job, while dissatisfaction leads to negative behavior. Although earlier research found no link between satisfaction and productivity, Luthans (1985) highlighted key factors such as pay, advancement, supervision, autonomy, workload, and work conditions. Management must consider these, as low satisfaction can reduce productivity. To assess satisfaction effectively, factors like absenteeism, health complaints, and overall performance should be evaluated.

Work Motivation

Motivating employees involves addressing individual needs while working toward organizational goals. According to Kocman and Weber (2018), motivation is the process by which individuals assess and pursue goals based on intensity, direction, and persistence. It promotes behaviors that help achieve personal and organizational objectives, as well as fulfill psychological needs (Çetin & Aşkun, 2018). A person's effort plays a key role in determining their level of motivation. There are two main types of workplace motivation: intrinsic and extrinsic (Asaari et al., 2019; Çetin & Aşkun, 2018). Intrinsic motivation arises from personal satisfaction or enjoyment derived from the task itself (Çetin & Aşkun, 2018; Kuvaas et al., 2017). It is influenced by factors such as autonomy, responsibility, and opportunities for

growth. In contrast, extrinsic motivation is driven by external rewards like recognition, promotions, or compensation (Çetin & Aşkun, 2018). Even when employees are not naturally enthusiastic about their work, they may still perform well to gain these rewards or avoid negative consequences (Asaari et al., 2019). Motivation is a complex concept that involves the interaction of both intrinsic and extrinsic factors (Kuvaas et al., 2017). Numerous studies have examined various influences on motivation, including wages, the work environment, job satisfaction, loyalty, and appreciation (Norbu & Wetprasit, 2020). Ultimately, motivation reflects a person's determination and leadership in reaching their career goals (Kocman & Weber, 2018).

The Significant of Spillover Theory in the Context of Work Life Balance

Spillover theory explains how experiences in one domain, such as work or family, influence behaviour, emotions, and attitudes in another (Bell & Rajendran, 2012). This interaction can be both positive and negative. Edwards and Rothbard (2000) describe spillover as either the transfer of skills and behaviors between domains or the positive link between satisfaction in work and life. For instance, working from home can cause exhaustion, or family obligations may interfere with job responsibilities. Spillover is categorized as positive or negative (Staines, 1980). Positive spillover occurs when success in one area enhances performance and satisfaction in another (Kumar & Janakiram, 2017; Greenhaus & Powell, 2006). Edwards and Rothbard (2000) identify four forms of positive spillover: affect, value, ability, and behaviour, which can flow in both directions between work and family. However, limited resources to handle responsibilities in both areas can lead to negative spillover, resulting in stress and strain (Lee et al., 2021; Hobfoll, 1989). This includes emotions, stress, or behaviors from work affecting family life, and vice versa (Lawson et al., 2013). When time spent between work and family is unbalanced, it can lead to work-family conflict (Asfahyadin et al., 2017). Thus, spillover theory provides insight into the need for work-life balance (Şahin & Açar, 2020; Shamaila, 2023).

The Mediating Role of Work Motivation between Work Life Balance and Employee Satisfaction

Firefighters in Malaysia perform both essential and non-essential duties, as outlined in Section 5 of the Fire Services Act 1988. Their responsibilities include fire suppression, prevention, protecting lives and property, conducting investigations, and providing humanitarian aid. In addition, they often take on administrative roles such as financial management, asset handling, and even station maintenance (Rizwan et al., 2014). Due to increasing workloads, firefighters face numerous workplace hazards, particularly during rescue operations. Excessive workload can lead to stress, reducing employees' ability to fully engage with their duties (Ishak & Lai, 2001). Firefighters are also exposed to harmful elements like chemical pollutants and smoke (Silverman et al., 2010). Selye (1956) found that such exposure can cause temporary respiratory irritation, which typically subsides after 24 hours. From a work-life balance perspective, career and family are interconnected, where the quality of one affects the other (Sauder et al., 1986). Work-life balance programs help employees manage both personal and professional responsibilities (Behera & Pahari, 2022) and are key to boosting motivation and productivity (Garg & Yajurvedi, 2016). A supportive and flexible workplace culture enhances motivation (Eichler & Albanese, 2007). Research shows a strong link between employee satisfaction and motivation (Rozzaid et al., 2015; Maurya & Agarwal, 2018). Motivation positively impacts job satisfaction (Parimita et al., 2018; Sidabutar et al., 2020). It drives individuals to meet personal and organizational goals (Çetin & Aşkun, 2018).

and involves effort, direction, and persistence (Kocman & Weber, 2016). High motivation reflects strong commitment and enhances job satisfaction (Sobaih & Hasanein, 2020). Thus, work-life balance, employee satisfaction, and motivation are closely connected.

Conceptual Framework

Considering the following in Figure 1, the study process begins with identifying work-life balance elements that fall within the purview of employees and non-employees. After a detailed study of these variables to determine whether they have a direct influence on employee satisfaction, an analysis is carried out to determine whether work motivation has a direct or indirect influence on employee satisfaction.

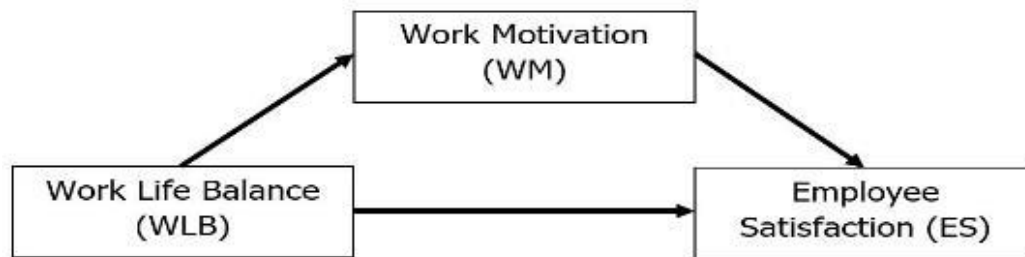


Figure 1: Conceptual Framework
(Reference: Alfatihah et al (2021))

Problem Statement

According to Qodrizana (2018), work-life balance has a significant impact on employee satisfaction. Valcour (2007) highlighted that one of the biggest challenges for employees is balancing work and personal life. Studies have shown that employees with a healthy work-life balance tend to be more satisfied and productive (Malik, 2023). Productive employees are those who take responsibility for tasks, manage their time well, solve problems effectively, and contribute to the organisation's success through strong teamwork (Rivai, 2011). Kelibulin (2020) also noted that disciplined and motivated employees are more likely to achieve their goals efficiently. Hasibuan (2013) argued that employee discipline is closely linked to job satisfaction—when employees are satisfied, discipline improves, while dissatisfaction leads to poor discipline. This is reflected in indicators such as productivity, turnover, and attendance. Harian Metro (2015b) reported that 154 firefighters and officers were dismissed or resigned over four years due to issues like substance abuse, absenteeism, and false medical claims. Similarly, Negaramerdeka (2022) cited that 226 JBPM personnel faced disciplinary actions, indicating ongoing human resource challenges. French (2013) found that longer working hours and heavier workloads create tense environments across public and private sectors. JBPM's Director-General, as cited in Kosmo (2020), stated that firefighter duties go beyond fire suppression, including traffic accidents, hazardous material incidents, disaster response, public safety education, fire investigations, aerial operations, and emergency medical services. Despite this, the department only achieved a 55% success rate for responding to emergency calls within 10 minutes out of 110,000 calls received, falling short of the target KPI. He emphasized the importance of prioritizing the welfare of firefighters, who carry out high-risk tasks. Heavy workloads negatively impact work-life balance and strain social relationships (Casper et al., 2005). Similarly, Ng et al. (2007) found that assigning employees tasks outside their usual scope increases workload and disrupts their personal time. These challenges highlight the need to explore work-life balance among firefighters to

support their well-being, enhance job performance, and strengthen the department's mission.

Methodology

This study uses correlation analysis to determine how work-life balance and job satisfaction are related thus work motivation acting as a mediating factor. A quantitative research design is the approach of choice for this study. Therefore, to collect data for this study, a survey is required. The survey method used is the distribution of an online questionnaire. The professional firefighters who have the same work environment, discipline, goal and purpose constitute the appropriate group of participants for this study. The professional firefighters in Sabah therefore form the population of the study. In addition, the study sample includes 280 respondents. A simple random sampling strategy was used to reach the respondents. The aim of the study and the characteristics of a population are taken into account when selecting a random sampling approach, probability sampling. To conduct the study, the researcher wrote an authorization and approval letter to the Director of Sabah Fire Department. The questionnaire used in this study was determined by adopting numerous questionnaires from previous relevant researchers whose studies fit the objectives of this research (Carlson et al. 2006). The adopted surveys will be further improved to ensure that they are appropriate given the cultural context of the Malaysian fire service work environment. The questionnaires are divided into two sections: Section A focuses on demographic profiling, while Section B deals with work-life balance, employee satisfaction and work motivation. Section A includes nine questions on the following topics: place of employment, age, marital status, number of children, type of home, year of employment, average income, additional income, and current level of education. Section B is divided into three sections. The questionnaires in the first section are based on Hayman's Work-Life Balance Scale, the second section is Work Extrinsic and Intrinsic Motivation Scale (WEIMS), created by Tremblay et al. (2009) and third section is Spector's Job Satisfaction Scale (JSS). The work-life balance scale includes fifteen items, WEIMS eighteen items, and JSS thirty-six items. The questionnaire uses the Likert scale and multiple-choice answers. There are five scales: strongly disagree on scale 1, strongly disagree on scale 2, neutral on scale 3, agree on scale 4 and strongly agree on scale 5.

Results

Measurement Model Testing and Convergent Validity Measurement

The average variance extracted (AVE), composite reliability, and external loading values all show convergent validity. The factor and the indicator variable are connected by the external load, sometimes referred to as the standard load. The load value falls between 0 and 1 points since SmartPLS 4.0 automatically standardizes the data. The load should be substantial since higher loads are indicative of a more reliable and stable measurement technique. In a reflective model, load is sometimes viewed as a type of item reliability coefficient, with a value closer to 1 or 0 denoting higher reliability than the latent variable. As per Hair et al (2017), the stress value ought to be greater than 0 points. All loading values between 0 and 70 should be taken into consideration if AVE is greater than 0 points (Henseler, 2015). In reflective models, there are other convergent validity tests besides Cronbach's alpha that can be employed, such as composite reliability. This is because, the Cronbach's alpha further underestimates scale reliability and may produce larger estimates of true reliability, previous research in PLS has used composite reliability as a measure of reliability. The composite reliability for a model meant for authentication could be higher than or equal to 0.70 (Hair et

al. 2017 Additionally, the AVE is a differentiated and convergent legitimacy test. It represents each latent component's mean community in a reflective model. The AVE should ideally be greater than the lateral load in a reproductive model, at least 0 point50 (Ramayah et al, 2018). This means that at least half of each indicator's variance should be explained by the factor. The error variance is greater than the given variation if the AVE is less than 0.50. The quadratic measure, which equals $0.708 = 0.50$, can be used to interpret the indicator's reliability (Henseler, 2015). As a result, an AVE's reliability ought to be higher than 0.50. In order to increase the AVE value to greater than 0.50 in the early stages of the convergent legality analysis, including independent work-life balance, items with an external load value of 0.50 in each construct must be eliminated. The structural elements to be eliminated are listed in Table 1 (WLB1). This element cannot be removed until the convergence validity requirements are met.

Table 1
Outer Loading, Composite Reliability (CR) and AVE Value

Konstruk laten	Indicator	Load Factor >0.50	Cronbach's Alpha >0.60	Composite Reliability >0.70	AVE >0.50
WLB	WIPL	WLB1	-0.215		
		WLB2	0.580		
		WLB3	0.643		
		WLB4	0.607		
		WLB5	0.890	0.720	0.830
		WLB6	0.904		0.548
		WLB7	0.888		
	PLIW	WLB8	0.764		
		WLB9	0.733	0.73	0.828
		WLB10	0.718		0.548
		WLB11	0.750		
	WPLE	WLB12	0.666		
		WLB13	0.716	0.715	0.822
		WLB14	0.730		0.536
		WLB15	0.813		
ES		ES1	0.840		
		ES2	0.904		
		ES3	0.922		
		ES4	0.694	0.870	0.905
		ES5	0.707		0.620
		ES5	0.602		
		WM1	0.818		
WM		WM2	0.690		
		WM3	0.738		
		WM4	0.825		
		WM5	0.754		
		WM6	0.753		
		WM7	0.549		
		WM8	0.630		
		WM9	0.690	0.928	0.938
		WM10	0.733		0.506
		WM11	0.423		
		WM12	0.778		
		WM13	0.669		
		WM14	0.760		
		WM15	0.749		

Table 2 demonstrates that, following item removal, each build's external load value, composite reliability, and AVE satisfied the necessary criteria, which are load value higher than 0.50, composite reliability higher than 0.70, and AVE higher than 0.50. Additionally, according to Table 2, the load value is less than 0.70. However, AVE values greater than 0 and 50 are still appropriate. Accordingly, the results demonstrate that the instrument met the requirements for convergent validity (Hair et al, 2017).

Table 2

Outer Loading, Composite Reliability (CR) and AVE Value

Konstruk laten	Indicator	Load Factor >0.50	Cronbach's Alpha >0.60	Composite reliability >0.70	AVE >0.50
WLB	WIPL	WLB2	0.720	0.830	0.549
		WLB3			
		WLB4			
		WLB5			
		WLB6			
		WLB7			
	PLIW	WLB8	0.734	0.828	0.548
		WLB9			
		WLB10			
		WLB11			
	WPLE	WLB12	0.715	0.822	0.536
		WLB13			
		WLB14			
		WLB15			
		WLB15			
ES		ES1	0.870	0.905	0.620
		ES2			
		ES3			
		ES4			
		ES5			
		ES5			
WM		WM1	0.928	0.938	0.506
		WM2			
		WM3			
		WM4			
		WM5			
		WM6			
		WM7			
		WM8			
		WM9			
		WM10			
		WM11			
		WM12			
		WM13			
		WM14			
		WM15			

Measuring Discriminant Validity Numbers

Fornell and Lacker, (1981) stated that the heterotrait-monotrait ratio (HTMT), cross-loading and the Fornell-Larcker test are the three main components of discriminant validity. Another way to demonstrate discriminant validity with AVE values is to use the Fornell-Larcker criterion. For every variable, the Fornell-Larcker criterion states that the main value of AVE ought to be bigger than the correlation with another variable. This shows that for each variable, the variance shared by the indicator block is larger than the variance shared by the other variables. Within diagonal cells in the SmartPLS, the output in the Fornell-Larcker criteria table, the correlation is located beneath the primary value of AVE. Discriminant validity is present in absolute terms when the highest number beneath it. For every construct in Table 4, the principal AVE number is greater than the corresponding structures. This figure indicates that Fornell Larcker's requirements are satisfied.

Table 3

Fornell Lacker (AVE > R)

	WLB (PLIW)	WLB (WIPL)	WLB (WPLE)	WM	WS
WLB (PLIW)	0.740				
WLB (WIPL)	0.871	0.740			
WLB (WPLE)	0.756	0.547	0.732		
WM	0.342	0.327	0.385	0.711	
WS	0.488	0.454	0.469	0.390	0.787

For both the components that should be clearly quantified and the factors that should not be clearly quantified, cross-linking is a useful loading indicator. The loading factor can range between 0.50 and 0.70 (Hair et al, 2017), with the determinant being more than 0.70 (Ramayah et al., 2018). On the contrary, <0.30 (Henseler et al, 2015) or <0.40 (Hair et al, 2017) should be the cross-loading determinant. An additional claimed replacement for AVE is cross loading. Therefore, if the AVE value meets the conditions, it is allowed even if the cross-loading value is not allowed (Henseler et al, 2015). Table 5 shows that each lateral load value is less than 0.40, meeting the lateral load requirements.

Table 4

Cross Loading

	WLB (PLIW)	WLB (WIPL)	WLB (WPLE)	WM	WS
WLB2	0.450	0.583	0.343	0.228	0.347
WLB3	0.710	0.641	0.432	0.150	0.255
WLB4	0.720	0.608	0.427	0.239	0.328
WLB5	0.745	0.900	0.433	0.265	0.331
WLB6	0.719	0.885	0.424	0.301	0.312
WLB7	0.714	0.884	0.414	0.249	0.326
WLB8	0.772	0.492	0.822	0.318	0.465
WLB9	0.733	0.612	0.435	0.234	0.336
WLB10	0.710	0.641	0.432	0.150	0.255
WLB11	0.745	0.900	0.433	0.265	0.331
WLB12	0.401	0.359	0.649	0.229	0.241
WLB13	0.475	0.393	0.731	0.265	0.381
WLB14	0.487	0.333	0.716	0.313	0.223
WLB15	0.772	0.492	0.822	0.318	0.465
WM1	0.356	0.335	0.386	0.814	0.349
WM2	0.315	0.313	0.272	0.684	0.268

WM3	0.264	0.308	0.228	0.730	0.288
WM4	0.248	0.206	0.328	0.830	0.305
WM5	0.285	0.241	0.353	0.762	0.282
WM6	0.189	0.181	0.220	0.748	0.273
WM7	0.130	0.122	0.194	0.557	0.228
WM8	0.229	0.198	0.218	0.633	0.272
WM9	0.214	0.227	0.235	0.692	0.304
WM10	0.246	0.218	0.335	0.739	0.222
WM11	0.084	0.153	0.045	0.417	0.150
WM12	0.314	0.309	0.354	0.774	0.332
WM13	0.210	0.208	0.207	0.671	0.271
WM14	0.234	0.194	0.326	0.765	0.275
WM15	0.196	0.184	0.230	0.744	0.286
WS1	0.341	0.324	0.350	0.355	0.841
WS2	0.383	0.352	0.396	0.364	0.905
WS3	0.431	0.388	0.446	0.351	0.922
WS4	0.362	0.322	0.335	0.209	0.694
WS5	0.427	0.401	0.368	0.258	0.707
WS6	0.350	0.346	0.294	0.283	0.601

The HTMT ratio can be defined as the average heterotrait-monotrait correlation (which shows correlation within the same construct) divided by the geometric mean of the heterotrait-monotrait correlation (which shows correlation between different phenomena). Ramayah et al (2018) state that because of the two constructs and the two monotrait heteromethods (set correlation in the construction), average geometric mean usage is necessary. The heterotrait correlation in the corresponding model should be lower than the monotrait correlation, as indicated by an HTMT ratio of less than 1.0 (Ramayah et al. 2018). As mentioned by Heseler et al. (2015), if the HTMT value is less than 0.90, it is acceptable to differentiate between the built-in reflection model's constructs. The heterotrait-monotrait ratio (HTMT) must be less than 0.90, according to Fornell and Lacker (1981). As a result, as indicated in Table 6, the heterotrait-monotrait ratio (HTMT) was attained in this investigation, with all values <1.00.

Table 5

Heterotrait-Monotrait (HTMT)

	WLB (PLIW)	WLB (WIPL)	WLB (WPLE)	WM	WS
WLB (PLIW)					
WLB (WIPL)	1.139				
WLB (WPLE)	0.953	0.695			
WM	0.381	0.356	0.453		
WS	0.586	0.527	0.566	0.431	

PLS-SEM Testing of Structural Models

As mentioned earlier, multiple analyses should form the basis of the structural model evaluation, which aims to validate the study's hypotheses. Size effect (f^2), predictive relevance (Q^2), determination coefficient R square (R^2), internal VIF or multicollinearity (Inner VIF), and structural model coefficient (β) are all analysed as part of structural model testing (Henseler et al, 2015).

Multicollinearity (Inner VIF)

To ascertain whether there is a redundant relationship between the independent variables, a multicollinearity test is employed. (Ramayah et al, 2018). In the event of $VIF < 5.00$, it is stated to be an instance of convergence (Henseler et al, 2015). Table 6 presents the findings of the multicollinearity analysis conducted in this study, indicating that all VIF test values are less than 5.00. As a result, every variable has satisfied the relevant VIF requirements.

Table 6

VIF

	WLB (PLIW)	WLB (WIPL)	WLB (WPLE)	WM	WS
WLB (PLIW)				7.696	7.739
WLB (WIPL)				4.716	4.817
WLB (WPLE)				2.645	2.810
WM					1.208
WS					

Coefficients of Path

The predicted variation of the dependent variable is represented by β when a variable unit of variation is used (Henseler et al., 2015). For every path in the proposed model, the β value is computed; A greater influence on the endogenous latent construction is indicated by a higher β value. To validate the significance of the β values, T-statistical tests are necessary; in the case of a one-sided study, the T-score needs to be higher than 1.645. Path coefficients and t-statistics are tested for significance using a bootstrapping technique. Out of all the extracts in Table 7, A path coefficient of ($\beta = 0.376$) is highest for the work-life balance construct. The study's anticipated hypotheses are as follows: Work motivation plays a significant role as a mediator between work-life balance and employee satisfaction, and work-life balance has a significant impact on employee satisfaction, work-life balance has a significant impact on work motivation, and work motivation has a significant impact on employee satisfaction. The study's findings were anticipated. Table 7 demonstrates that WPLE (H1) is the only factor that significantly affects employee satisfaction. Only WPLE and WIPL are accepted in H2, indicating that work-life balance has a significant effect on employee motivation. H3 demonstrates a significant correlation between employee satisfaction and work motivation at $p = 0.00$. < 0.05 , whereas the other WLB constructs have no significant relationship with work motivation and employee satisfaction, with $p > 0$ points, five.

Table 7

Path Coefficient

		WLB Constructs	Sample mean (M)	Standard deviation (STDEV)	T statistics (O/STDEV)	P values
H1	WLB-> ES	WIPL	0.196	0.101	1.912	0.056
		PLIW	0.078	0.128	0.636	0.525
		WPLE	0.224	0.087	2.525	0.012
H2	WLB-> WM	WIPL	0.305	0.139	2.077	0.038
		PLIW	-0.200	0.190	0.993	0.321
		WPLE	0.376	0.105	3.520	0.000
H3	WM -> ES		0.221	0.057	3.794	0.000

To determine full mediation and partial mediation, Hair et al (2017) used mediation procedure analysis. For H4, the mediator of work motivation only has a mediating effect between WPLE and employee satisfaction where the mediation relationship declared as partial mediation as figure below;

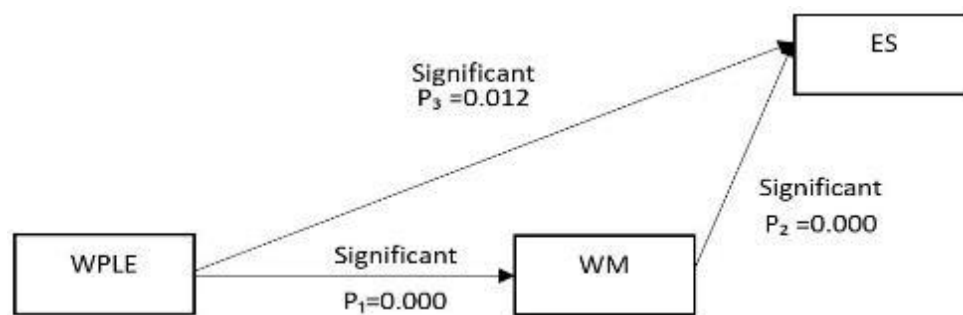


Figure 2: Mediation affect

R square (R²)

The R-squared (R²) values show the contribution value of each variable. According to Hair et al. (2014), R² bigger than 0.67 is high, R² bigger than 0.33 is intermediate and R² bigger than 0.19 is weak. As shown in Table 8, the weak predictive power value of the model is indicated by R² = 0.172 and 0.314, where free extract has a low contribution value. This indicates that the R² value indicates that the independent constructs can account for 17 percent and 31 percent of the variations related to the dependent construct of the study, respectively. Overall, the R² value of this research model is considered substantial and acceptable. This model showed that employee satisfaction and motivation had a statistically significant main effect.

Table 8

R²

VARIABLE	R ²
WM	0.172
WS	0.314

The R-squared value (R²) yields the impact strength (f²). Determining how one variable depends on the other variables is the goal of analysing the effect of size (f²) (Ramayah et al, 2018). The determinant coefficient (R²), which shows when an independent variable is removed from the model's trajectory, the value of the latent endogenous construct is altered to determine whether the appearance of an exogenous latent variable significantly affects it. The following formula is used to calculate the size effects associated with the variables:

$$f^2 = \frac{(R^2 \text{ included} - R^2 \text{ excluded})}{(1 - R^2 \text{ included})}$$

Furthermore, three sizes can be used to analyse the size impacts: f² higher than 0.35 is high, and 0.15 bigger than f². Smaller than 0.35 is moderate, and 0.00 bigger than f² smaller than 0.15 is minor. Consequently, Table 9 showed analytical result, which has all value of f² is minor.

Table 9

 f^2

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (O/STDEV)	P values
WLB (PLIW) -> WM	0.006	0.011	0.014	0.393	0.694
WLB (PLIW) -> WS	0.001	0.004	0.006	0.208	0.836
WLB (WIPL) -> WM	0.021	0.028	0.022	0.990	0.322
WLB (WIPL) -> WS	0.011	0.014	0.012	0.919	0.358
WLB (WPLE) -> WM	0.062	0.071	0.040	1.575	0.115
WLB (WPLE) -> WS	0.025	0.031	0.023	1.082	0.279
WM -> WS	0.056	0.064	0.034	1.658	0.097

Predictive relevance (Q^2)

The blindfolding method is used in this study to determine the predictive relevance (Q^2) value. For a certain endogenous latent construction, the measured Q^2 value needs to be higher than zero (Hair et al, 2014). Therefore, $Q^2 = 0.134$ and 0.247 , which satisfies the Q^2 criterion of $Q^2 > 0$ (Hair et al, 2014), is displayed in Table 10 as a result of the blindfolding analysis result. This number demonstrates the predictive significance of the constructed model. The created career difficulties model's structural model is displayed in Figure 2.

Table 10

 Q^2

	Q^2 predict	RMSE	MAE
WM	0.134	0.939	0.725
WS	0.247	0.880	0.614

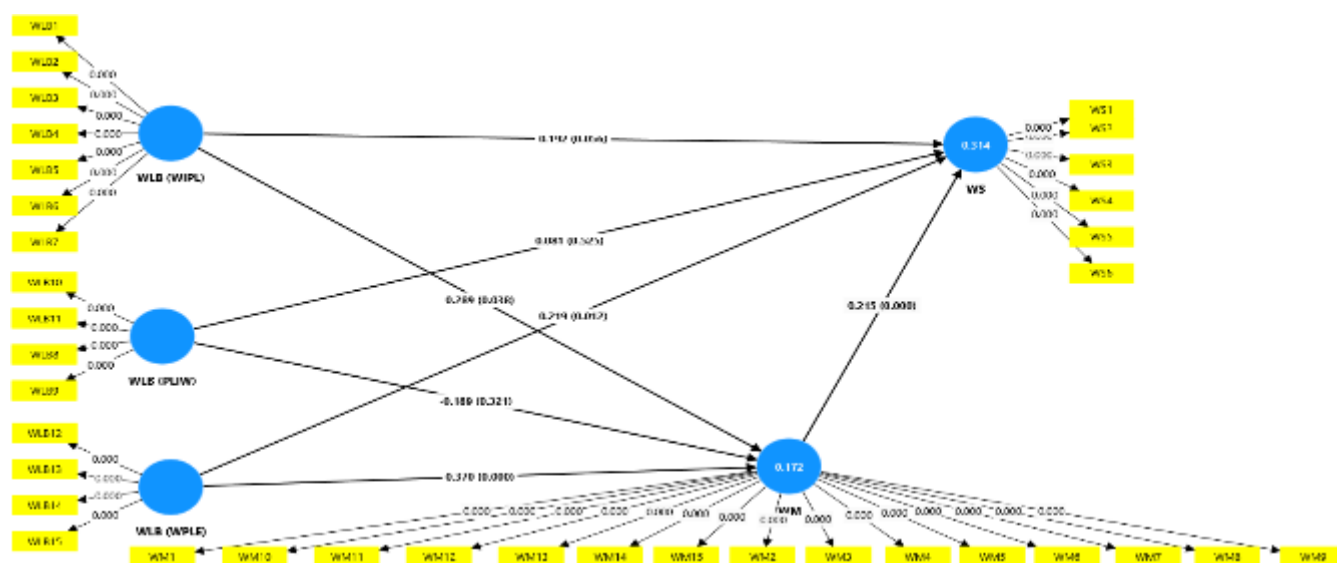


Figure 3: Work Life Balance Model (PLS-SEM 4.0)

Discussion

In short, work-life balance (WLB) is divided into three main constructs (Hayman, 2005) in this study. These encompass the effects of life on work (PLIW), the connection or enrichment between work and life (WPLE), and the impact of work interference on life (WIPL). Every work-life balance construct is linked to the variables employee satisfaction and work motivation. Employee satisfaction is a dependent variable while motivation is a mediating variable that also indirectly acts as an independent variable. The results of this research revealed that in general each variable has a significant relationship, but in detail there are constructs that do not show a significant relationship. For the WLB construct, PLIW has no significant relationship with both variables, while WIPL has no significant relationship with employee satisfaction. In most cases, the relationship between constructs and variables is significant and this is consistent with the results (Fianitog, 2024). The PLIW construct and the work motivation variables have the strongest significant relationship, according to this finding. This shows that the atmosphere in the room has an influence on firefighters' motivation at work. It is crucial to take into account how the WLB construct WPLE affects both variables. This shows that firefighters' lives and careers support each other. This happens when family support for work is strong and firefighters' professional attitude manages work-life balance in a way that provides family support and satisfaction for the spouse's career. This aligns with Muthukumaran et al, (2023) findings as well. As a mediating variable, work motivation shows a significant positive mediating effect, although the effect is small. This evaluation method uses the latest mediation method analysis introduced by (Hair et al, 2017).

Conclusion

Enhancing organisational performance is the primary objective of human resource management. This model shows how work-life balance for firefighters may be conceived based on two crucial factors: Workplace motivation and employee satisfaction. The study on work-life balance, employee satisfaction, and work motivation among Malaysian firefighters provides a foundation for significant contributions across various domains. By expanding spillover theory to include cultural and sector-specific nuances, the research can address unique challenges in high-stress professions globally. Comparative studies with other regions and fields, such as healthcare or IT, can highlight universal and context-specific insights. These findings inform policy development by guiding frameworks for mental health support, flexible work arrangements, and family-inclusive policies. Integrating variables like technological interventions and health programs adds depth to the discourse, while sectoral applications beyond emergency services broaden the study's relevance. Finally, intervention-based experimental research can validate findings and offer actionable strategies to enhance workplace well-being across diverse industries. In order to develop a perfect life-balance model and address the growing awareness of work-life balance in Malaysia, more research is suggested to investigate new factors that influence work-life balance among other government agencies or the private sector in various fields.

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