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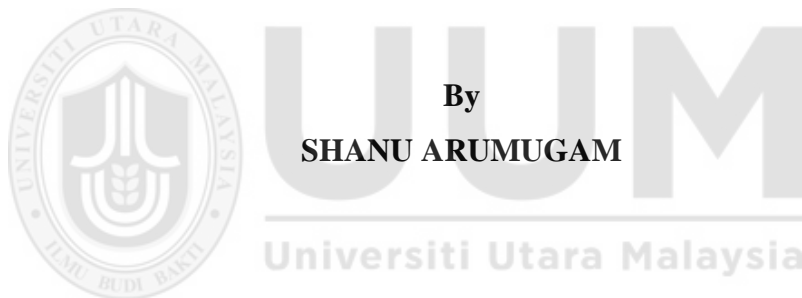


**THE RELATIONSHIP BETWEEN JOB STRESS, WORK -
FAMILY CONFLICT, WORKLOAD AND EMPLOYEE WORK -
LIFE BALANCE IN SEMICONDUCTOR INDUSTRY**



**MASTER OF HUMAN RESOURCES MANAGEMENT
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JANUARY 2026**

**THE RELATIONSHIP BETWEEN JOB STRESS, WORK -
FAMILY CONFLICT, WORKLOAD AND EMPLOYEE WORK -
LIFE BALANCE IN SEMICONDUCTOR INDUSTRY**



Thesis Submitted to
School of Business Management, Universiti Utara Malaysia,
in Partial Fulfillment of the Requirement for the Master of Human Resource
Management



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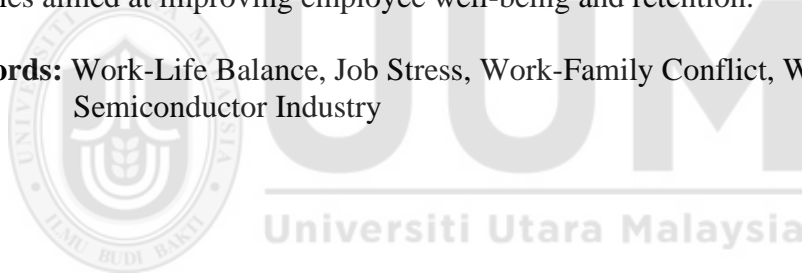


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ABSTRACT

Work-life balance has become an increasingly important concern, particularly in high-demand industries such as the electronic semiconductor sector in Malaysia, where employees are often exposed to long working hours, high job demands, and strict production schedules. This study was conducted to examine the relationship between job stress, work-family conflict, workload, and work-life balance among employees in the Malaysian electronic semiconductor industry. A quantitative research approach was adopted using a survey method, with data collected through self-administered questionnaires distributed to employees working in selected semiconductor companies in Penang. The data were analyzed using the Statistical Package for the Social Sciences (SPSS) through descriptive analysis, reliability analysis, Pearson correlation, and multiple regression analysis. The findings revealed that job stress, work-family conflict, and workload have significant relationships with work-life balance, with work-family conflict identified as the strongest predictor, followed by workload and job stress. The results indicate that higher levels of stress, excessive workload, and increased work-family conflict negatively affect employees' ability to maintain a healthy balance between work and personal life. This study contributes to the existing literature by providing empirical evidence from the Malaysian semiconductor industry and offers practical insights for organizations to implement effective human resource strategies aimed at improving employee well-being and retention.

Keywords: Work-Life Balance, Job Stress, Work-Family Conflict, Workload, Semiconductor Industry



ABSTRAK

Keseimbangan kerja-kehidupan merupakan isu yang semakin penting, khususnya dalam industri berintensiti tinggi seperti sektor semikonduktor elektronik di Malaysia, di mana pekerja sering berhadapan dengan waktu kerja yang panjang, tuntutan kerja yang tinggi, dan jadual pengeluaran yang ketat. Kajian ini dijalankan untuk mengkaji hubungan antara tekanan kerja, konflik kerja-keluarga, beban kerja, dan keseimbangan kerja-kehidupan dalam kalangan pekerja industri semikonduktor elektronik di Malaysia. Kajian ini menggunakan pendekatan kuantitatif melalui kaedah tinjauan, dengan data dikumpulkan menggunakan borang soal selidik yang diedarkan kepada pekerja di beberapa syarikat semikonduktor terpilih di Pulau Pinang. Data yang diperolehi dianalisis menggunakan Statistical Package for the Social Sciences (SPSS) melalui analisis deskriptif, analisis kebolehpercayaan, korelasi Pearson, dan analisis regresi berganda. Dapatan kajian menunjukkan bahawa tekanan kerja, konflik kerja-keluarga, dan beban kerja mempunyai hubungan yang signifikan dengan keseimbangan kerja-kehidupan, dengan konflik kerja-keluarga dikenal pasti sebagai peramal paling dominan, diikuti oleh beban kerja dan tekanan kerja. Hasil kajian ini memberikan sumbangan empirikal kepada literatur sedia ada serta menawarkan implikasi praktikal kepada organisasi untuk melaksanakan strategi pengurusan sumber manusia yang lebih berkesan bagi meningkatkan kesejahteraan dan pengkalan pekerja.

Kata Kunci : Keseimbangan Kerja-Kehidupan, Tekanan Kerja, Konflik Kerja-Keluarga, Beban Kerja, Industri Semikonduktor



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LIST OF ABBREVIATIONS

CEIC	Centre for Economic and Policy Research Information Centre
DOSM	Department of Statistics Malaysia
E&E	Electrical and Electronics
HR	Human Resources
JD-R	Job Demands–Resources Model
JDC	Job Demands–Control Model
SPSS	Statistical Package for the Social Sciences
WIPL	Work Interference with Personal Life
WLB	Work–Life Balance



CHAPTER ONE

INTRODUCTION

1.1 Background of Study

The contemporary work landscape has undergone significant transformations driven by technological advancements and globalization, which have profoundly impacted work-life balance (Rahman & Sing, 2024). These changes have intensified job demands and blurred the boundaries between work and personal life, making work–life balance (WLB) a growing concern for employees and organizations worldwide (Greenhaus & Beutell, 1985; Clark, 2000; Kalliath & Brough, 2008). As employees are increasingly required to meet high performance expectations, manage heavy workloads, and remain constantly connected to work through technology, maintaining a healthy balance between work and non-work roles has become more challenging (Kossek, Valcour, & Lirio, 2014). A recent survey in Malaysia revealed that only four out of ten respondents were satisfied with their work-life balance, with more than half regularly working beyond eight hours daily (Bunyan, 2023). These findings underscore the critical need for strategies that promote a healthy equilibrium between work and personal life.

Work–life balance is commonly defined as the extent to which individuals are able to manage work responsibilities alongside personal and family roles without excessive conflict between these domains (Clark, 2000; Greenhaus, Collins, & Shaw, 2003). Prior research consistently demonstrates that work–life balance is closely associated

with important work outcomes such as job satisfaction, organizational commitment, productivity, and employee well-being (Haar et al., 2014; Greenhaus & Allen, 2011). Conversely, poor work–life balance has been linked to increased stress, emotional exhaustion, absenteeism, and turnover intention (Amstad et al., 2011; Ganster & Rosen, 2013). These findings highlight that work–life balance is not merely a personal concern but a critical organizational and human resource issue.

The challenge of achieving work–life balance is particularly pronounced in high-demand and technology-driven work environments. The Job Demands–Control (JDC) model and the Job Demands–Resources (JD-R) model suggest that excessive job demands, such as heavy workload, time pressure, and long working hours, can deplete employees’ physical and psychological resources, leading to stress, strain, and work–life imbalance when adequate resources and support are lacking (Karasek, 1979; Demerouti et al., 2001). Empirical studies across manufacturing and high-technology sectors confirm that employees exposed to sustained job demands are more likely to experience burnout, work–family conflict, and reduced well-being (Cooper, Dewe, & O’Driscoll, 2001; Ganster & Rosen, 2013).

The electrical and electronics (E&E) manufacturing sector, which includes semiconductor-related activities, represents one of the most critical and demanding industries in Malaysia. This sector is characterized by fast-paced production processes, strict quality standards, shift work, and strong global competitive pressures. Employees working in high-technology manufacturing environments often face high workload, time pressure, and continuous performance monitoring, all of which increase the risk of job stress and work–life imbalance (Karasek, 1979; Demerouti et

al., 2001; Ganster & Rosen, 2013). Previous research suggests that such demanding work conditions make it particularly difficult for employees to fulfil both work and family responsibilities effectively (Allen et al., 2000; Amstad et al., 2011).

From an organizational perspective, promoting work–life balance is essential for sustaining employee performance and retaining skilled talent, particularly in industries that rely heavily on technical expertise and human capital. Organizations that fail to address excessive job demands and work–life balance issues are more likely to experience higher turnover rates, reduced employee engagement, and long-term productivity challenges (Greenhaus & Allen, 2011; Haar et al., 2014). Given the strategic importance of Malaysia’s semiconductor and high-technology manufacturing sector, understanding the factors that influence employees’ work–life balance is crucial for both employee well-being and organizational sustainability.

Accordingly, this study focuses on examining work–life balance within the Malaysian semiconductor industry by investigating key job-related factors that have been consistently identified in the literature, namely job stress, workload, and work–family conflict. These variables are widely recognized as central determinants of work–life balance across high-demand work environments, yet empirical evidence examining their combined effects within Malaysia’s semiconductor context remains limited (Allen et al., 2000; Amstad et al., 2011). Addressing this gap contributes to a deeper understanding of employee well-being in a critical industry and provides valuable insights for organizational and human resource practices.

1.2 Problem Statement

Work–life balance (WLB) has emerged as a critical issue in contemporary organizations, particularly in industries characterized by high job demands, long working hours, and intense performance pressure. Extensive research has shown that employees who experience poor work–life balance are more likely to suffer from stress, burnout, reduced job satisfaction, and increased turnover intention, all of which negatively affect both individual well-being and organizational performance (Greenhaus & Allen, 2011; Amstad et al., 2011). As work environments become increasingly demanding, maintaining a healthy balance between work and personal life has become more difficult for employees across various sectors.

High-demand and technology-driven industries are especially vulnerable to work–life balance challenges due to the nature of their work systems. According to the Job Demands–Control model and the Job Demands–Resources model, excessive job demands such as heavy workload, time pressure, and long working hours can exhaust employees' physical and psychological resources, leading to job stress and work–life imbalance when adequate support is lacking (Karasek, 1979; Demerouti et al., 2001). Empirical evidence consistently indicates that prolonged exposure to such demands increases the likelihood of emotional exhaustion, work–family conflict, and diminished well-being (Cooper et al., 2001; Ganster & Rosen, 2013).

In Malaysia, work–life balance has become an increasing concern, particularly among employees working in demanding organizational contexts. Previous studies on Malaysian employees have reported that long working hours, high workload, and role stress significantly contribute to job stress and work–family conflict, which in turn

undermine employees' ability to maintain a satisfactory balance between work and personal life (Noor, 2011; Rasdi et al., 2011). These challenges are more pronounced in manufacturing and high-technology sectors, where strict production schedules and performance expectations are common.

The electrical and electronics (E&E) manufacturing sector, which includes semiconductor-related activities, represents one of the most strategically important yet demanding industries in Malaysia. Employees in high-technology manufacturing environments are frequently required to meet tight deadlines, comply with strict quality standards, and adapt to rapidly changing technologies. Such working conditions are associated with high workload and elevated job stress, increasing the risk of work–family conflict and work–life imbalance (Karasek, 1979; Allen et al., 2000; Ganster & Rosen, 2013). Despite the economic importance of this sector, employee well-being issues related to work–life balance remain a significant challenge. Job stress is a critical factor contributing to work–life imbalance in high-demand work environments. When employees experience sustained stress due to excessive workload and time pressure, their ability to fulfil personal and family responsibilities is often compromised (Cooper et al., 2001; Ganster & Rosen, 2013). Similarly, work–family conflict arises when work demands interfere with family roles, leading to strain that negatively affects both work and non-work outcomes (Greenhaus & Beutell, 1985; Allen et al., 2000). Numerous studies have confirmed that work–family conflict is one of the strongest predictors of poor work–life balance and reduced employee well-being (Amstad et al., 2011).

Although prior research has extensively examined job stress, workload, and work–family conflict in relation to work–life balance, much of the existing literature has focused on general organizational settings or other sectors such as healthcare, education, and services. Empirical studies that collectively examine these factors within Malaysia’s high-technology and semiconductor-related manufacturing context remain limited (Noor, 2011; Rasdi et al., 2011). This lack of industry-focused empirical evidence restricts a comprehensive understanding of how these job-related stressors jointly influence work–life balance among employees in this critical sector. Therefore, a clear research gap exists in examining the combined effects of job stress, workload, and work–family conflict on work–life balance among employees in the Malaysian semiconductor industry. Addressing this gap is important not only for advancing academic understanding but also for providing practical insights that can help organizations design effective human resource strategies to enhance employee well-being, retention, and sustainable performance in a highly competitive and demanding industry.

1.3 Research Questions

The research questions of the study are:

- i. Does job stress influence work-life balance among employees in the semiconductor industry?
- ii. Does work-family conflict influence work-life balance among employees in the semiconductor industry?
- iii. Does workload influence work-life balance among employees in the semiconductor industry?

1.4 Research Objective

An objective is an important element in research as it is a main guidance for the researcher to clear about the purpose of the research being conducted. As for that, this research is attempted to focus on several research objectives as follows:

- i. To examine the relationship between job stress and work-life balance among employees in the electronic semiconductor industry.
- ii. To investigate the relationship between work-family conflict and work-life balance among employees in the electronic semiconductor industry.
- iii. To analyze the relationship between workload and work-life balance among employees in the electronic semiconductor industry.

1.5 Significance of research

This research is significant as it addresses the critical issue of work-life balance within the Malaysian electronic semiconductor industry, a sector that has become a key contributor to the nation's economic growth. As the semiconductor industry continues to expand rapidly, employees are increasingly confronted with high job stress, work-family conflicts and workload. These challenges can negatively affect their work-life balance, leading to decreased job satisfaction, reduced productivity, and higher turnover rates. Understanding the relationship between job stress, work-family conflict, workload, and work-life balance is crucial for several reasons.

Firstly, this study contributed to the existing body of knowledge by addressing a research gap within the semiconductor industry, where limited studies have collectively examined these variables. By doing so, it provided a more comprehensive

understanding of how these factors influence employee well-being and job performance.

Secondly, the findings of this research offered practical implications for human resource practitioners, managers, and policymakers within the semiconductor sector. Identifying key stressors and conflicts that affect work-life balance enabled organizations to implement targeted interventions aimed at improving employee well-being. Strategies such as flexible work arrangements, wellness programs, and supportive policies can help alleviate job stress and manage job demands effectively. Furthermore, improving work-life balance is essential for talent retention, particularly given the current shortage of skilled workers in Malaysia's semiconductor industry. By fostering a positive work environment and enhancing work-life integration, companies can boost employee engagement, increase productivity, and strengthen organizational performance factors that are crucial for maintaining competitiveness in the global market.

Lastly, the research outcomes may serve as a foundation for future studies exploring work-life balance issues in other high-demand industries. By broadening the scope of knowledge in this area, the study offered valuable insights that can be applied not only within the electronic semiconductor sector but also across various industries facing similar challenges, both locally and internationally.

1.6 Scope of research

This study focuses on examining the relationship between job stress, work-family conflict, and workload on work-life balance among employees working in the

electronic semiconductor industry in Penang. The study is limited to the electronic semiconductor sector due to its rapid growth, high job demands, and significant contribution to Malaysia's economy, making it a critical area for understanding employee well-being and organizational performance. The primary data were collected through structured questionnaires distributed to employees working in production, engineering, and administrative roles within semiconductor companies.

Additionally, the study utilized quantitative research methods, employing statistical analysis to interpret the data collected. The findings of this research are expected to provide insights into the factors affecting work-life balance in the electronic semiconductor industry and propose recommendations to improve employee well-being and organizational productivity.

1.7 Definition of Key Terms

Work – Life Balance

Work–life balance refers to an individual's overall assessment of how effectively work responsibilities can be managed alongside personal and family commitments, such that excessive interference between the two domains is minimized (Hayman, 2005). In this study, higher scores on the work–life balance scale indicate better perceived balance between work and personal life.

Job Stress

Job stress describes the psychological strain experienced by employees when work demands, role expectations, or job conditions exceed their ability to cope, often resulting in tension and anxiety in the workplace (House & Rizzo, 1972).

Work Family Conflict

Work–family conflict arises when pressures associated with work responsibilities hinder an individual’s ability to fulfil family or personal roles, creating competing demands across life domains (Greenhaus & Beutell, 1985).

Work load

Workload can be understood as the extent to which job demands, including task volume and time pressure, require sustained physical and mental effort that may exceed an employee’s available resources (De Bruin & Taylor, 2006)

1.8 Organization of Thesis

This thesis is structured into five chapters. Chapter 1 provides an introduction to the research topic, including the background, problem statement, research objectives, research questions, scope, limitations, significance, key definitions, and the overall organization of the thesis. Chapter 2 presents a comprehensive review of literature related to job stress, workload, work–family conflict, work–life balance, and the underpinning theory. Chapter 3 outlines the research methodology, detailing the research design, data collection methods, sampling techniques, and data analysis approach. Chapter 4 presents the findings of the study through data analysis. It includes descriptive statistics, correlation analysis, and hypothesis testing to examine the relationships between job stress, work-family conflict, workload, and work-life balance. The results are analyzed and interpreted in the context of existing literature. Chapter 5 concludes the thesis by discussing the key findings and their implications for employees, organizations, and policymakers. It connects the results to theoretical

frameworks and prior studies while highlighting the study's contributions. The chapter also addresses the limitations of the research and provides recommendations for future studies before concluding with final remarks.



CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter presents a review of the literature on the topic of job stress, work – family conflicts, workload and Work - life balance. The purpose of this chapter is to provide an understanding of the variables used in this study and how they contribute to it. The chapter concludes by discussing the underpinning theory, the search model and development of hypotheses.

2.2 Work - life balance

2.2.1 Conceptualization of Work - life balance

Work - life balance is defined as a state of equilibrium in which the requirements of both the work and personal life of an individual are equal (Roopavathi & Kishore,2021). Employee work-life balance has been widely studied and is considered a crucial aspect of organizational well-being and employee satisfaction. Work - life balance is defined as balancing one’s professional work, family responsibilities, and other personal activities (Kerdpitak and Jernsittiparsert, 2020). Similarly, Clark (2000) defined work-life balance as the degree to which an individual is able to simultaneously balance the temporal, emotional, and behavioral demands of work and personal roles.

Earlier conceptualizations of work–life balance primarily viewed it as the absence of conflict between work and family domains (Greenhaus & Beutell, 1985). However, subsequent research has highlighted that work–life balance is a broader construct that

extends beyond the mere reduction of work–family conflict. Greenhaus, Collins, and Shaw (2003) conceptualized work–life balance as the extent to which individuals are equally engaged in and satisfied with their work and family roles. This perspective suggests that balance is achieved not only through minimizing conflict but also through attaining positive involvement and satisfaction across life domains.

The concept of work–life balance has evolved over time in response to changes in work structures, technological advancement, and increasing job demands. Kalliath and Brough (2008) noted that work–life balance should be understood as an individual’s overall appraisal of the compatibility between work and non-work roles, rather than a fixed or universal state. Similarly, Grzywacz and Carlson (2007) argued that work–life balance reflects the accomplishment of role-related expectations that are negotiated and shared between individuals and their work and family partners.

Empirical studies have consistently demonstrated that work–life balance is closely associated with important employee and organizational outcomes. Employees who perceive a higher level of work–life balance tend to report greater job satisfaction, improved psychological well-being, and stronger organizational commitment (Haar et al., 2014; Greenhaus & Allen, 2011). Conversely, poor work–life balance has been linked to increased stress, emotional exhaustion, absenteeism, and turnover intention (Amstad et al., 2011; Ganster & Rosen, 2013).

The relevance of work–life balance is particularly pronounced in high-demand and technology-driven work environments. According to the Job Demands–Resources model, excessive job demands such as long working hours, heavy workload, and time

pressure can impair employees' ability to maintain balance between work and personal life when adequate resources and support are lacking (Demerouti et al., 2001). Employees working in manufacturing and high-technology semiconductor industries often experience difficulty managing work and family responsibilities due to strict production schedules and performance expectations (Allen et al., 2000; Karasek, 1979).

Despite extensive research on work–life balance, gaps remain in understanding how this construct is shaped by job stress, workload, and work–family conflict within specific industrial contexts. While many studies have examined work–life balance in general organizational settings, relatively limited empirical research has focused on high-technology and semiconductor-related industries in Malaysia. Given the demanding nature of such work environments, further investigation is required to better understand how work–life balance is influenced by job-related stressors in this context. Therefore, this study aims to examine work–life balance in relation to job stress, workload, and work–family conflict among employees in the Malaysian semiconductor industry.

2.2.2 Previous Study on Work - life balance

Work–life balance refers to the equilibrium between professional responsibilities and personal life roles, allowing individuals to effectively manage work and non-work demands (Clark, 2000). When this balance is not achieved, employees are more likely to experience negative work outcomes such as reduced job satisfaction and increased turnover intentions (Kossek & Ozeki, 1998). In highly demanding industries such as the semiconductor sector, achieving work–life balance can be particularly challenging due to long working hours, shift work, and high performance expectations (Wong et

al., 2022). Previous studies have consistently demonstrated that employees who are able to maintain work–life balance report higher job satisfaction, lower stress levels, and improved overall well-being (Haar et al., 2014).

Beyond its impact on job attitudes, work–life balance has also been linked to broader quality-of-life outcomes. Greenhaus, Collins, and Shaw (2003) found that employees who perceive a higher level of balance between work and family roles experience better psychological well-being and overall life satisfaction. Similarly, Greenhaus and Allen (2011) conceptualized work–life balance as equal engagement and satisfaction across work and family roles, emphasizing that balance is influenced by role demands, role salience, and available personal and organizational resources. Empirical research has shown that high levels of work–family conflict undermine perceptions of balance, while supportive work environments and flexible work arrangements enhance employees’ ability to manage competing role demands (Gagnano et al., 2020).

In high-pressure and technology-driven industries, including manufacturing and semiconductor sectors, work–life balance plays a critical role in employee retention and well-being. Recent studies conducted in Malaysia’s semiconductor industry indicate that poor work–life balance significantly contributes to job stress and turnover intentions among employees, particularly due to extended working hours and limited flexibility (Soon et al., 2025). Conversely, organizations that implement work–life balance initiatives such as flexible scheduling, supervisor support, and employee-friendly policies report higher levels of employee satisfaction and lower turnover intentions. These findings highlight the importance of work–life balance as a strategic human resource practice, especially in demanding industrial environments.

2.3 Job Stress

2.3.1 Conceptualization of Job Stress

Job stress refers to the physical and emotional responses that occur when the demands of a job do not match the worker's capabilities, resources, or needs (Nawong, 2019). Job stress is a critical factor influencing employee well-being and performance in the workplace. It is defined as the physical and emotional responses that arise when job demands do not align with the worker's abilities, resources, or needs (Lazarus & Folkman, 1984). According to Beehr and Newman (1978), job stress is also described as a condition wherein job-related factors interact with the worker, altering their psychological or physiological condition and forcing them to deviate from normal functioning. It is often perceived as a harmful physical and emotional response when job requirements exceed employees' capabilities (Cooper et al., 2001).

Job stress has been widely examined within organizational research and is commonly linked to high job demands, role ambiguity, and limited control over work activities. When employees are exposed to prolonged stressors, their physical and psychological resources may be depleted, increasing the likelihood of burnout and reduced well-being (Karasek, 1979; Ganster & Rosen, 2013).

In high-technology and manufacturing work environments, including semiconductor-related operations, job stress is prevalent due to the fast-paced, highly technical, and performance-driven nature of work. Employees in such environments are often required to work long hours, meet tight production deadlines, and continuously update their skills to keep pace with rapid technological advancements (Karasek, 1979; Cooper, Dewe, & O'Driscoll, 2001). According to the Job Demands–Resources model,

excessive job demands such as workload, time pressure, and cognitive complexity increase employees' psychological strain, particularly when organizational support and recovery opportunities are limited (Demerouti et al., 2001).

In Malaysia, employees working in manufacturing and high-technology sectors have been found to experience elevated levels of job stress due to competitive global market pressures and high productivity expectations (Noor, 2011; Rasdi et al., 2011). Empirical research consistently shows that prolonged exposure to job stress is associated with negative outcomes such as burnout, emotional exhaustion, reduced job satisfaction, and impaired work–life balance (Ganster & Rosen, 2013; Amstad et al., 2011). These outcomes are especially relevant in shift-based and technology-intensive work settings, which share structural characteristics with semiconductor operations.

Despite the extensive literature on job stress, existing studies have largely focused on general organizational or manufacturing contexts, with relatively limited empirical research examining job stress and its consequences specifically within Malaysia's semiconductor industry. This limitation restricts a detailed understanding of how job stress influences work–life balance in this high-demand sector. Therefore, this study seeks to address this gap by examining the relationship between job stress and work–life balance among employees working in the Malaysian semiconductor industry.

2.3.2 Previous Studies on Job Stress

Job stress is a prevalent issue in modern workplaces and has been extensively studied due to its negative impact on employee well-being and productivity. According to Selye (1976), stress is the body's nonspecific response to any demand for change. In

the semiconductor industry, job stress is often linked to high work demands, long working hours, and strict deadlines (Ahmad & Zainol, 2020). A study by Sutherland and Cooper (2000) found that prolonged job stress can lead to burnout, decreased job satisfaction, and reduced performance. Similarly, Yusoff et al. (2018) emphasized that high job stress among semiconductor employees significantly affects their work–life balance and overall well-being.

From an occupational stress perspective, job stress arises when job demands exceed an individual’s capacity or available resources to cope effectively. The Job Demand–Control (JDC) model proposed by Karasek (1979) suggests that employees experience higher levels of stress when they are exposed to high job demands combined with low decision-making authority or control. Numerous empirical studies have supported this model by demonstrating that excessive workload, time pressure, and limited job autonomy are strong predictors of job stress across a wide range of industries and occupational settings.

When such stressful work conditions persist over time, employees are more likely to experience negative psychological and health-related outcomes. Ganster and Rosen (2013) reported that prolonged exposure to job stress is associated with emotional exhaustion, psychological strain, and increased risk of physical health problems. These findings reinforce the view that unmanaged job demands can have serious long-term consequences for employee well-being.

Further empirical evidence indicates that job stress not only affects individual health outcomes but also has significant organizational consequences. Beehr and Newman

(1978) highlighted that chronic job stress contributes to absenteeism, reduced organizational commitment, and increased turnover intentions. Meta-analytic and review studies have consistently shown that high levels of job stress negatively affect employee engagement, job satisfaction, and work–life balance, particularly in demanding and manufacturing-oriented work environments (Amstad et al., 2011; Ganster & Rosen, 2013). These findings underscore the importance of effective stress management strategies and supportive organizational practices to mitigate the adverse effects of job stress on both employees and organizations.

2.4 Workload

2.4.1 Conceptualization of Workload

Workload refers to all activities involving employees' time spent in performing professional duties, responsibilities and interests at work, either directly or indirectly (Johari, Yean Tan & Tjik Zulkarnain, 2018). Workload is commonly conceptualized as the amount of physical, cognitive, and emotional effort required to perform job tasks within a given time frame (Karasek, 1979). It reflects the extent to which job demands, such as task volume, deadlines, and complexity, exceed an employee's available resources and capacity. Traditionally, workload has been divided into quantitative workload and qualitative workload. Quantitative workload refers to the sheer volume of tasks and time pressure faced by employees, while qualitative workload relates to the difficulty and complexity of the tasks themselves (Spector & Jex, 1998). Both dimensions can contribute to strain, stress, and reduced job performance when perceived as excessive.

In the context of the Job Demands–Control (JDC) model and the Job Demands–Resources (JD-R) model, workload is treated as a central job demand that can deplete employee energy and lead to negative outcomes such as burnout, role conflict, and poor work-life balance (Demerouti et al., 2001). When workload is consistently high without adequate recovery or organizational support, employees are more likely to experience psychological strain, reduced motivation, and disengagement. On the other hand, manageable levels of workload can have positive outcomes by keeping employees engaged and productive, suggesting that workload needs to be understood not only in terms of quantity but also in terms of balance between demands and resources.

In semiconductor industry, workload takes on heightened importance due to the sector's fast-paced and precision-driven nature. Employees are often required to manage continuous production cycles, operate under tight deadlines, and adapt to technological advancements, all of which contribute to both quantitative and qualitative workload. Studies in high-demand sectors show that excessive workload is associated with longer working hours, reduced opportunities for recovery, and difficulties in balancing personal and professional roles (Shafiqul & Jayaweera, 2019). These challenges highlight the direct link between workload and employee well-being outcomes such as work-life balance, stress levels, and job satisfaction.

Thus, in this study, workload is conceptualized as a multidimensional construct encompassing both the volume of tasks (quantitative workload) and the complexity of those tasks (qualitative workload). It is examined as an independent variable that directly influences employees' work-life balance in the Malaysian semiconductor

industry, where the pressure to sustain global competitiveness amplifies workload demands on employees.

2.4.2 Previous Studies on Workload

Workload has been extensively examined in organizational and occupational psychology research due to its strong influence on employee well-being and job outcomes. Earlier studies conceptualized workload primarily through the Job Demands–Control (JDC) model, which suggests that high workload combined with low control over work processes leads to stress and psychological strain (Karasek, 1979). Building on this, the Job Demands–Resources (JD-R) model further established workload as a primary job demand that, when excessive, contributes to burnout, reduced motivation, and impaired work-life balance (Demerouti et al., 2001).

Several empirical studies have highlighted the negative relationship between workload and work-life balance (WLB). For example, Haar et al. (2014) found that excessive workload significantly reduced employees' ability to balance professional and personal roles, with consequences for both job satisfaction and family well-being. Similarly, Shafiqul and Jayaweera (2019), in their study on the manufacturing sector, reported that high workload is strongly associated with work-life imbalance, as employees often extend their working hours to meet organizational demands, leaving little time for family and recovery. In Malaysia, Noor (2011) emphasized that high workload and long working hours are among the main factors leading to WLB challenges, particularly for employees in industries characterized by intense production schedules.

Workload has also been linked to job stress and burnout in multiple contexts. A study by Wu et al. (2019) in the technology sector demonstrated that workload significantly contributes to emotional exhaustion and psychological stress, which in turn reduces employee engagement and performance.

Taken together, previous studies consistently show that excessive workload undermines work-life balance, increases job stress, and negatively affects employee well-being and organizational outcomes. However, most existing studies have been conducted in healthcare, education, and service sectors, with limited research focusing specifically on the semiconductor industry in Malaysia. Given the unique demands of this industry such as round-the-clock operations, tight deadlines, and high-precision tasks, further research is needed to understand the extent to which workload impacts work-life balance within this context. This study aims to address that gap.

2.5 Work – family conflict

2.5.1 Conceptualization of Work – Family Conflict

Work–family conflict is a form of inter-role conflict in which the demands of work and family roles are mutually incompatible, such that participation in one role makes participation in the other more difficult (Greenhaus & Beutell, 1985). This incompatibility arises when pressures from the work domain interfere with family responsibilities, resulting in stress and difficulty in fulfilling role expectations across life domains.

Carlson, Kacmar, and Williams (2000) further conceptualized work–family conflict as a multidimensional construct comprising time-based, strain-based, and behavior-based

conflict. Time-based conflict occurs when time devoted to one role reduces the time available for the other role, strain-based conflict arises when stress experienced in one role interferes with performance in the other role, and behavior-based conflict occurs when behaviors required in one role are incompatible with expectations in the other. The concept of work–family conflict has evolved alongside changes in workforce composition and societal norms. Early research primarily focused on women’s experiences in balancing employment and caregiving responsibilities. However, subsequent studies have demonstrated that both men and women experience work–family conflict as they navigate demanding careers and family roles (Byron, 2005). This shift reflects the increasing participation of dual-income households and the growing intensity of work demands across occupations.

In high-demand and time-intensive work environments, such as manufacturing and high-technology sectors, work–family conflict is particularly salient due to long working hours, high workload, and performance pressures. Empirical research consistently shows that excessive job demands and limited flexibility increase work–family conflict, which in turn negatively affects employee well-being and work–life balance (Allen et al., 2000; Amstad et al., 2011). Despite extensive research on work–family conflict, empirical studies focusing specifically on semiconductor employees in Malaysia remain limited. Therefore, this study seeks to address this gap by examining the relationship between work–family conflict and work–life balance within Malaysia’s semiconductor industry.

2.5.2 Previous Studies on Work-Family Conflict

Work–family conflict is a form of inter-role conflict in which the demands arising from work and family domains are mutually incompatible, such that participation in one role makes participation in the other more difficult (Greenhaus & Beutell, 1985). In the semiconductor industry, where employees are often exposed to long working hours, shift work, and high production pressures, the prevalence of work–family conflict is particularly pronounced. Noor and Maad (2008) found that excessive job demands and time pressure significantly strain family relationships and reduce personal time, thereby negatively affecting employees’ work–life balance. Similarly, Lingard and Francis (2005) reported that persistent work–family conflict leads to stress, fatigue, and decreased job satisfaction, which in turn undermines organizational commitment.

Previous research has also distinguished work–family conflict into time-based, strain-based, and behavior-based dimensions. According to Greenhaus and Beutell (1985), time-based conflict occurs when time devoted to work limits family involvement, while strain-based conflict arises when work-related stress interferes with family roles. Empirical studies have consistently shown that time pressure and emotional exhaustion are strong predictors of work–family conflict, particularly in demanding occupations and manufacturing environments (Allen et al., 2000). These forms of conflict have been linked to higher levels of psychological distress and reduced life satisfaction among employees.

Further empirical evidence indicates that work–family conflict has significant consequences for both individual well-being and organizational outcomes. Meta-analytic studies have demonstrated that work–family conflict is negatively related to

job satisfaction and organizational commitment, while being positively associated with stress, burnout, and turnover intentions (Amstad et al., 2011). In high-technology and production-oriented industries, including the semiconductor sector, limited job flexibility and rigid work schedules further intensify work–family conflict (Noor, 2011). Collectively, these findings highlight the importance of addressing work–family conflict as a key factor influencing employee well-being, job attitudes, and work–life balance.

2.6 Underpinning Theory – Role Theory

This study is underpinned by Role Theory, specifically Role Stress Theory, as introduced by Kahn, Wolfe, Quinn, Snoek, and Rosenthal (1964). Role Theory posits that individuals occupy multiple roles in their lives, such as work roles and family roles, each of which carries specific expectations, responsibilities, and demands. When the demands associated with these roles become excessive or incompatible, individuals experience role stress, which can negatively affect their well-being and overall life balance.

Within the context of this study, workload represents a form of role overload, where the demands of the work role exceed an individual’s available time and energy. According to Role Stress Theory, excessive role demands place significant pressure on individuals, making it difficult to fulfill role expectations effectively. Prolonged exposure to such overload leads to job stress, which reflects an individual’s psychological response to excessive and competing role demands.

Role Theory further explains that when the demands of the work role interfere with responsibilities in the family role, work–family conflict occurs. This form of inter-role conflict arises when time, strain, or behavioral expectations from work make it difficult for individuals to meet family-related obligations. As work demands intensify, employees experience greater difficulty managing responsibilities across roles, leading to heightened levels of conflict between work and family domains.

In this study, work–life balance is conceptualized as an outcome of individuals’ ability to manage and harmonize the demands of their work and personal roles. According to Role Stress Theory, persistent role overload, job stress, and work–family conflict reduce individuals’ capacity to maintain balance across life domains. Therefore, Role Theory provides a strong theoretical foundation for explaining how workload, job stress, and work–family conflict influence employees’ work–life balance, particularly in demanding work environments such as the semiconductor industry.

2.7 Hypotheses Development

2.7.1 Relationship between Job Stress and Work-Life Balance

Job stress has long been recognized as a critical factor affecting employees’ psychological well-being and their ability to manage work and non-work roles effectively. Job stress occurs when job demands exceed an individual’s capacity, resources, or ability to cope, resulting in physical and emotional strain (Beehr & Newman, 1978; Lazarus & Folkman, 1984). When employees experience prolonged stress, they often find it difficult to disengage from work, leading to reduced time and energy for personal and family responsibilities.

Empirical studies have consistently reported a negative relationship between job stress and work–life balance. Sutherland and Cooper (2000) found that employees experiencing high levels of job stress reported poorer work–life balance due to fatigue and emotional exhaustion. In the Malaysian context, Noor (2011) also highlighted that increased job stress contributes to work–life imbalance by extending working hours and reducing opportunities for recovery, thereby limiting employees’ ability to fulfill non-work roles.

From the perspective of Role Theory, prolonged exposure to excessive work demands creates role overload and psychological strain, making it difficult for individuals to effectively manage multiple roles simultaneously (Kahn et al., 1964). As job stress intensifies, employees experience greater difficulty balancing work and personal responsibilities, which ultimately undermines their perceived work–life balance. Based on the theoretical arguments and empirical evidence, the following hypothesis is proposed:

H1: Job stress has a significant negative relationship with work–life balance.

2.7.2 Relationship Between Work-Family Conflict and Work-Life Balance

Work–family conflict refers to a form of inter-role conflict in which the demands of work and family domains are mutually incompatible, such that participation in one role makes participation in the other more difficult (Greenhaus & Beutell, 1985). When work responsibilities interfere with family roles, individuals experience difficulty fulfilling obligations across domains, leading to psychological strain and reduced well-being. Such conflict is particularly salient in demanding and time-intensive work

environments where employees are required to manage multiple and competing role expectations.

Empirical studies have consistently demonstrated that work–family conflict is strongly associated with poorer work–life balance. Lingard and Francis (2005) found that employees experiencing high levels of work–family conflict reported lower work–life balance due to increased stress, fatigue, and role overload. Meta-analytic evidence further confirms that work–family conflict is one of the strongest predictors of work–life imbalance, with significant negative effects on job satisfaction, psychological well-being, and overall life balance (Amstad et al., 2011).

From the perspective of Role Theory, work–family conflict arises when excessive role demands from the work domain interfere with responsibilities in the family domain, creating inter-role incompatibility (Kahn et al., 1964). As work–family conflict intensifies, individuals experience greater difficulty managing multiple roles simultaneously, which directly undermines their perceived work–life balance. Based on the theoretical arguments and empirical evidence, the following hypothesis is proposed:

H2: Work–family conflict has a significant negative relationship with work–life balance.

2.7.3 Relationship between Workload and Work-Life Balance

Workload refers to the amount and intensity of work assigned to an employee within a given period, encompassing both quantitative demands such as volume of tasks and time pressure, as well as qualitative demands such as task complexity and

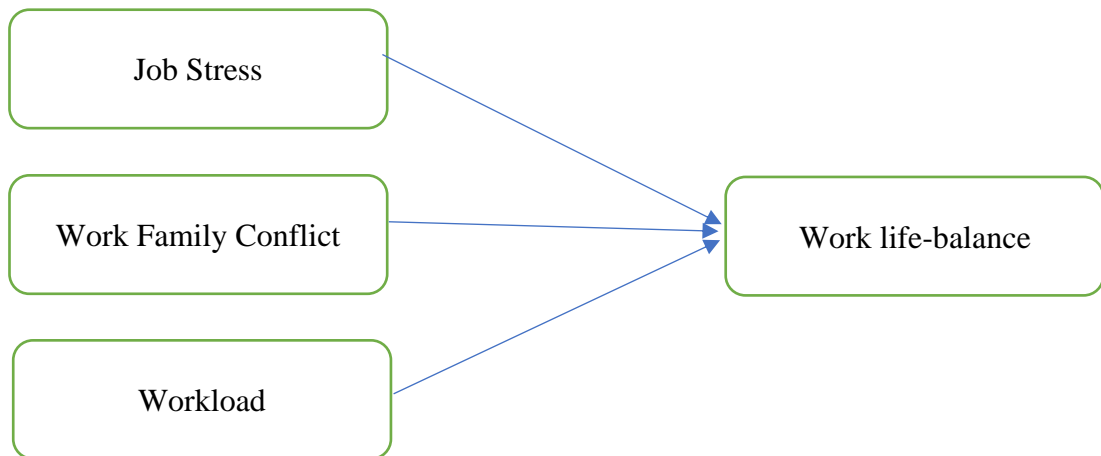
responsibility (Demerouti et al., 2001). When workload is excessive, employees are required to expend sustained physical and psychological effort, which limits opportunities for recovery and reduces the resources available for non-work roles.

Empirical studies have consistently demonstrated that excessive workload negatively affects work–life balance. In the Malaysian context, Noor (2011) reported that employees facing heavy workload often experience work–life imbalance due to extended working hours and reduced personal and family time. Research conducted in demanding work environments further indicates that sustained workload pressure contributes to difficulties in managing work and personal responsibilities, thereby undermining perceived work–life balance.

From the perspective of Role Theory, excessive workload represents a form of role overload, where the demands of the work role exceed an individual's available time and energy (Kahn et al., 1964). As role overload intensifies, employees experience greater difficulty fulfilling responsibilities across multiple roles, leading to imbalance between work and personal life. Therefore, workload is expected to have a negative effect on employees' work–life balance. Based on these arguments, the following hypothesis is proposed:

H3: Workload has a significant negative relationship with work–life balance.

2.8 Conceptual Framework



Independent Variable

Dependent Variable

Figure 2.1: Research Framework

2.9 Summary

Chapter Two provides a comprehensive review of the literature related to job stress, work–family conflict, workload, and work–life balance in demanding work environments, with particular reference to the Malaysian semiconductor industry. The review highlights that excessive workload often leads to increased job stress and heightened work–family conflict, which in turn negatively affect employees’ ability to maintain a healthy balance between work and personal life. Prior studies consistently demonstrate that prolonged exposure to high job demands and role pressures contributes to psychological strain, role overload, and inter-role conflict.

This chapter also establishes Role Stress Theory as the underpinning theoretical framework of the study. Drawing on this theory, the literature explains how excessive work role demands create role overload and inter-role conflict, resulting in job stress

and diminished work–life balance. Based on the reviewed theoretical arguments and empirical evidence, hypotheses were developed to examine the relationships between workload, job stress, work–family conflict, and work–life balance, thereby providing a strong foundation for the empirical analysis presented in the subsequent chapter.

CHAPTER THREE

METHODOLOGY

3.1 Introduction

Chapter Three provides a detailed description of the research methods employed in this study. It covers the study design, population, sampling technique, unit of analysis, research instrument, data collection strategy and data analysis technique.

3.2 Research Design

This study adopts a quantitative research design to examine the relationship between job stress, work-family conflict, workload, and work-life balance among employees in the semiconductor industry in Penang. A quantitative approach is appropriate as it allows for the objective measurement of variables and the statistical testing of hypotheses. The research strategy employed is a survey method, utilizing structured questionnaires to collect primary data from respondents. This method is selected due to its effectiveness in gathering data from a relatively large number of participants and its ability to generate quantifiable results that can be analyzed statistically.

To ensure that the data collected is relevant and meaningful, a purposive sampling technique was employed. This non-probability sampling method allows the researcher

to deliberately select respondents who meet specific criteria that align with the objectives of the study. In this research, participants were selected based on their employment in the semiconductor industry in Malaysia, with a minimum of 1 year working experience in their current organization to ensure adequate exposure to workplace conditions. Employees holding operational, technical, or managerial roles were targeted, as these categories are more likely to experience higher levels of job stress, workload, and work-family conflict, making them suitable for this investigation. The sample size was determined using Krejcie and Morgan table to ensure statistical validity and reliability of the findings.

Data were collected through self-administered questionnaires that include Likert-scale items designed to measure job stress, work-family conflict, workload, and work-life balance. The data were then analyzed using the Statistical Package for the Social Sciences (SPSS), where descriptive statistics used to summarize demographic characteristics and variable distributions, while inferential analyses such as correlation and regression conducted to test the hypotheses. To ensure reliability and validity, a pilot study was conducted, and Cronbach's alpha was calculated to assess the internal consistency of the measurement scales. Ethical considerations, including informed consent, voluntary participation, and confidentiality of respondents, were strictly observed throughout the research process.

3.3 Sampling Design

3.3.1 Unit of Analysis

The unit of analysis for this research is individual employees working in the semiconductor industry in Malaysia. The primary focus is on gathering data from these

employees to examine the relationship between job stress, work-family conflict, workload, and their impact on work-life balance. The rationale for selecting individual employees as the unit of analysis lies in the nature of the study, which aims to understand how personal experiences of stress, conflicts between work and family, and workload affect their overall work-life balance. Analyzing individual-level data allows for capturing diverse perspectives and variations in experiences within the semiconductor industry workforce.

Data has been collected directly from individual employees through structured questionnaires, which measured variables related to job stress, work-family conflict, workload, and work-life balance. Analyzing data at the individual level facilitate identifying patterns and correlations between these variables, thereby addressing the research objectives effectively.

By using individuals as the unit of analysis, the study ensures that the findings are directly relevant to understanding how personal factors contribute to work-life balance within the semiconductor industry. This approach enhances the accuracy and reliability of the results and provides valuable insights that can inform organizational strategies for improving employee well-being.

3.3.2 Population

The population of this study consists of full-time employees working in the electronic semiconductor industry in Penang, Malaysia, specifically from three major semiconductor companies: Flextronics Technology, Micron, and Intel. These companies were selected because they are medium to large multinational organizations

with substantial workforces and represent key players within the semiconductor sector in Penang. As such, employees from these organizations provide an appropriate and relevant population for examining issues related to job stress, work–family conflict, workload, and work–life balance.

The electronic semiconductor industry is widely recognized as a fast-paced, high-pressure, and demanding work environment. Employees in this sector are often exposed to high job demands, strict production targets, long working hours, and intense performance pressures, which have been shown to contribute to increased job stress and work–family conflict and to negatively affect work–life balance (Idris, 2011; Noor & Maad, 2008; Omar et al., 2015). These characteristics make the semiconductor industry an appropriate context for investigating the relationships among job stress, work–family conflict, workload, and work–life balance.

The target population includes full-time employees from various job roles, departments, and levels of experience within Flextronics Technology, Micron, and Intel. Job roles include engineers, technicians, and administrative staff, while departments may include production, quality assurance, engineering, and human resources. This diversity is important because employees in different roles and departments are exposed to different job demands, responsibilities, and work conditions, which may lead to varying levels of stress, workload, and work–family conflict. By including respondents from diverse functional areas, this study captures a comprehensive and representative view of the semiconductor workforce, thereby enhancing the external validity and generalizability of the findings within the industry.

To ensure the accuracy and relevance of the data collected, this study focused on full-time employees who had been working in their respective organizations for at least one year. This inclusion criterion ensures that respondents have sufficient experience and exposure to the organizational environment to provide informed and reliable responses regarding job stress, work–family conflict, workload, and work–life balance. Part-time employees and interns were excluded from the study, as their work arrangements, responsibilities, and job demands may differ substantially from those of full-time employees.

3.3.3 Sample Size

A total of approximately 2400 employees in the semiconductor industry in Penang were scoped as the target population for this research. Determining an appropriate sample size is crucial for ensuring the accuracy and generalizability of the research findings while minimizing errors and reducing time and cost (Zainuddin, 2010). According to Sekaran and Bougie (2010), the most appropriate sample size for conducting research should be more than 30 and less than 500, as this range helps avoid committing a Type II error, which is the tendency to accept statistical results instead of rejecting them.

Based on the scientific guideline provided by Krejcie and Morgan (1970), a minimum sample size of 334 was chosen for this study. This sample size is deemed adequate to ensure valid and reliable results and generalizability to the larger population. The decision to select this sample size aligns with previous research practices and is statistically sufficient for the scope of this study.

3.3.4 Sampling Technique

This study employed a purposive sampling technique to select participants who are most relevant to the research objectives. Purposive sampling, also known as judgmental or selective sampling, involves the deliberate selection of individuals based on specific characteristics that align with the purpose of the study. This technique is particularly suitable for research that aims to gain deep insights from a specific group of individuals with relevant experience.

In this research, the sample was drawn from full-time employees working in the semiconductor industry in Penang, Malaysia, who have minimum one year of work experience in their current organization. This inclusion criterion ensures that participants have sufficient exposure to job stress, work-family conflict and workload, enabling them to provide meaningful responses about their work-life balance.

The purposive sampling approach allows the researcher to focus on individuals who are likely to provide rich and relevant data about the relationship between job stress, work-family conflict, workload, and work-life balance. Employees were selected from various departments such as production, engineering, and administration across multinational and local semiconductor firms to ensure a diverse and representative perspective. This method is appropriate for this study due to the specialized nature of the semiconductor industry and the need to explore the experiences of employees directly involved in high-demand and high-stress roles.

3.4 Measurement

This study has four variables. The dependent variable is Work - life balance. Meanwhile, the independent variables are job stress, work – family conflict and workload. To measure the variables involved, existing scales were modified to adapt with the current study. A survey method was employed to gather data, as it is cost-effective and efficient. All measures used a five-point Likert scale. The scale ranges from 1 to 5, where 1 represents “Strongly Disagree,” 2 represents “Disagree,” 3 represents “Neutral” 4 represents “Agree,” and 5 represents “Strongly Agree.” Respondents were required to indicate the extent to which they agreed or disagreed with each statement by selecting one of these five response options. A higher score reflects a stronger level of agreement with the statement, while a lower score indicates a stronger level of disagreement.

3.4.1 Measurement of Job Stress

Job stress was measured using a six-item scale developed by House and Rizzo (1972). This instrument is widely used to assess job-related stress arising from role tension, work pressure, and psychological strain in organizational settings. The scale has been extensively applied in occupational stress research and is particularly suitable for high-demand work environments such as the semiconductor industry.

The job stress construct consists of two dimensions, namely job tension and work-related anxiety, with three items measuring each dimension, resulting in a total of six items. All items were measured using a five-point Likert scale, ranging from 1 = Strongly Disagree to 5 = Strongly Agree, where higher scores indicate higher levels of perceived job stress.

In previous studies, the job stress scale developed by House and Rizzo (1972) demonstrated strong reliability, with Cronbach's Alpha values ranging from 0.79 to 0.88, indicating good internal consistency (Beehr & Newman, 1978; Ganster & Rosen, 2013). This supports the suitability of the scale for measuring job stress in the current study.

The operational definitions and measurement items for job stress are presented in Table 3.1.

Table 3.1: Operational Definition and Item Measurement of Job Stress

Variables	Operational Definition	Items
Job tension	Refers to the psychological stress and discomfort experienced by employees due to work-related factors, such as high job demands, role ambiguity, workload pressure, and interpersonal conflicts at the workplace. It is characterized by feelings of strain, frustration, and emotional exhaustion, which may adversely impact job performance and overall well-being.	<ol style="list-style-type: none"> 1. My job tends to directly affect my health. 2. I work under a great deal of tension. 3. I feel fidgety or nervous due to my job.
Work Anxiety	Feeling of nervousness, worry, or apprehension that arises from job-related situations, such as meeting deadlines, facing performance evaluations, or coping with workload demands. It is characterized by symptoms like restlessness, excessive worrying, difficulty concentrating, and physical symptoms such as increased heart rate or sweating	<ol style="list-style-type: none"> 1. If I had a different job, my health would probably improve. 2. Problem associated with work have kept awake at night. 3. I feel nervous before attending meeting in my company.

3.4.2 Measurement of Workload

Workload was measured using a six-item scale adapted from De Bruin and Taylor (2006). This instrument conceptualizes workload as a job demand characterized by excessive task volume, time pressure, and work intensity. The scale has been widely used in organizational and occupational health studies to examine workload-related stress and employee well-being. The workload construct in this study focuses on quantitative workload, reflecting employees' perceptions of working hours, speed of work, and time pressure. All six items were measured using a five-point Likert scale, ranging from 1 = Strongly Disagree to 5 = Strongly Agree, where higher scores represent higher perceived workload. Previous studies using the workload scale by De Bruin and Taylor (2006) reported Cronbach's Alpha values between 0.80 and 0.90, indicating high reliability and internal consistency (De Bruin & Taylor, 2006; Idris, 2011). These reliability values support the use of this scale in the present study. The operational definitions and measurement items for workload are shown in Table 3.2.

Table 3.2 : Operational Definition and Item Measurement of Workload

Variable	Operational Definition	Items
Workload	Workload describes a perception of having too many things to do and not enough time to do them.	1.I feel that there are too many deadlines in my work that are difficult to meet 2.I work more than 8 hours a day 3.I have to work very fast 4.My daily activities affected because of workload (i.e, exercise, eating time and sleeping time) 5.I like to wake up at night because of problem at work 6.I have no energy left at the end of the working day

3.4.3 Measurement of Work – Family Conflict

Work–family conflict was measured using a five-item scale developed by Haslam et al. (2015). This scale assesses the extent to which work-related demands interfere with employees’ ability to fulfil family and personal responsibilities, particularly in terms of time and psychological strain. The scale captures employees’ perceived conflict between work and family roles and is suitable for industries with long working hours and high job demands, such as the semiconductor sector. All five items were measured using a five-point Likert scale, ranging from 1 = Strongly Disagree to 5 = Strongly Agree, with higher scores indicating greater levels of work–family conflict.

In previous studies, the work–family conflict scale reported strong reliability, with Cronbach’s Alpha values ranging from 0.85 to 0.92, demonstrating excellent internal consistency (Haslam et al., 2015; Amstad et al., 2011). This indicates that the instrument is reliable for assessing work–family conflict in the current study. The operational definitions and measurement items for work–family conflict are presented in Table 3.3.

Table 3.3 : Operational Definition and Item Measurement of Work – Family Conflict

Variable	Operational Definition	Items
Work – Family Conflict	The extent to which work obligations hinder fulfilling family roles.	1. My work prevents me spending sufficient quality time with my family. 2. There is no time left at the end of the day to do the things I’d like at home. 3. I am often distracted by thoughts about work while spending time with my family.

4. My family misses out because of my work commitments.

5. My work performance suffers because of my personal and family commitments.

3.4.4 Measurement of work – life balance

Work–life balance was measured using a six-item scale adapted from Hayman (2005). This instrument is designed to assess employees’ perceived balance between work and non-work roles and has been widely applied in organizational research.

The scale measures work–life balance as a unidimensional construct reflecting the overall ability of individuals to manage work responsibilities alongside personal and family life. All six items were measured using a five-point Likert scale, ranging from 1 = Strongly Disagree to 5 = Strongly Agree, where higher scores indicate good work–life balance.

Previous studies using Hayman’s (2005) work–life balance scale reported Cronbach’s Alpha values ranging from 0.83 to 0.93, indicating high reliability and strong internal consistency (Hayman, 2005; Haar et al., 2014). These findings support the appropriateness of the scale for the current research context.

The operational definitions and measurement items for work–life balance are provided in Table 3.4

Table 3.4 : Operational Definition and Item Measurement of Work - life balance

Variable	Operational Definition	Items
Work Life-Balance	The extent to which work does not interferes with personal work	<ol style="list-style-type: none">1. My personal life does not suffers because of work.2. My job does not make my personal life difficult.3. I am able to meet my personal needs despite the work.4. I am able to maintain my personal life alongside work.5. I am able to participate in personal activities despite work.6. I am able to balance work and non work.

3.5 Pilot Study

A pilot study was conducted prior to the actual data collection to ensure the clarity, reliability, and suitability of the research instrument. The primary purpose of the pilot study was to identify potential issues related to questionnaire wording, structure, item clarity, and response time, as well as to assess the internal consistency of the measurement scales used in this study.

The pilot study involved 30 employees working in the electronic semiconductor industry in Penang who shared similar characteristics with the target population but were excluded from the final sample. According to Sekaran and Bougie (2016), a pilot sample size of 20 to 30 respondents is sufficient for testing the reliability and clarity of a research instrument. Therefore, the selected sample size was deemed appropriate for the purpose of this pilot testing.

The questionnaire used in the pilot study consisted of four main sections measuring job stress, workload, work–family conflict, and work–life balance, adapted from established and validated instruments. Respondents were asked to complete the questionnaire and provide feedback regarding item clarity, wording, and overall comprehensibility. Minor improvements were made based on respondents’ feedback, particularly in simplifying sentence structure and ensuring consistency in terminology.

Reliability analysis was conducted using Cronbach’s Alpha to assess the internal consistency of each construct. A Cronbach’s Alpha value of 0.70 or above was considered acceptable, indicating good reliability (Nunnally, 1978). The results of the pilot study indicated that all constructs achieved acceptable reliability values, confirming that the measurement items were reliable and suitable for use in the main study.

Table 3.5 Result of Pilot Study

Variables	Number of items	Cronbach’s Alpha
Job Stress	6	0.878
Workload	6	0.905
Work – Family Conflict	5	0.912
Work - life balance	6	0.938

Overall, the pilot study confirmed that the questionnaire was clear, reliable, and appropriate for examining the relationships between job stress, work–family conflict, workload, and work–life balance among employees in the semiconductor industry.

3.6 Data Collection Procedures

Data collection was carried out systematically to ensure accuracy, reliability, and ethical compliance throughout the research process. The primary data for this study

were collected using a structured self-administered questionnaire, which was distributed to employees working in electronic semiconductor companies in Penang.

Prior to the distribution of the questionnaire, formal permission was obtained from the Human Resources (HR) departments or designated organizational representatives of the participating companies, namely Flextronics Technology, Micron, and Intel. The HR departments acted as gatekeepers and facilitated the distribution of the questionnaire by circulating the survey link to eligible employees via official company email channels. This approach ensured that the questionnaire reached only employees who met the inclusion criteria and complied with organizational policies.

Respondents were informed about the purpose of the study, and their participation was strictly voluntary. An informed consent statement was included at the beginning of the questionnaire, explaining the objectives of the study, the confidentiality of responses, and the respondents' right to withdraw at any time. No personally identifiable information was collected, and anonymity was fully assured.

The questionnaires were distributed using an online survey platform which is google form through email, which was selected due to its efficiency, cost-effectiveness, and ability to reach respondents across different job roles and organizational levels. The online method also minimized data entry errors and encouraged honest responses by allowing participants to complete the questionnaire at their convenience.

The data collection process was conducted over a period of approximately six weeks, from September to October 2025. During this period, reminder emails were sent

through the HR departments to improve the response rate. A total of 360 questionnaires were distributed, of which 342 were returned. After screening for incomplete and invalid responses, 334 valid questionnaires were retained for further data analysis.

All collected data were stored securely and were accessible only to the researcher. Upon completion of data collection, the responses were coded and analyzed using the Statistical Package for the Social Sciences (SPSS). The structured and systematic data collection procedures ensured that the data obtained were reliable, accurate, and appropriate for achieving the research objectives of this study.

3.7 Data Analysis Technique

Data analysis is a critical step in this study, as it enables the interpretation of collected data and the examination of the relationships between job stress, work–family conflict, workload, and work–life balance among employees in the semiconductor industry in Malaysia. The data analysis process involved several systematic stages to ensure the accuracy, reliability, and validity of the findings.

Upon completion of data collection, the raw data obtained from the online questionnaires were subjected to data cleaning procedures, including screening for missing values, incomplete responses, and inconsistent entries. This step ensured that only valid and usable responses were retained for further analysis. The cleaned data were then analyzed using the Statistical Package for the Social Sciences (SPSS) version 27, which is widely used in social science research due to its reliability, efficiency, and ability to perform both descriptive and inferential statistical analyses.

Descriptive statistical analysis was first conducted to summarize the demographic characteristics of respondents and to provide an overview of the study variables. Measures such as frequencies, percentages, means, and standard deviations were used to describe the distribution of responses. This analysis helped to understand the general patterns and tendencies of job stress, work–family conflict, workload, and work–life balance among the respondents.

To assess the reliability of the measurement scales, Cronbach’s alpha was calculated for each construct. Cronbach’s alpha is an appropriate reliability measure for Likert-scale survey instruments, as it evaluates the internal consistency of items measuring the same construct. A Cronbach’s alpha value of 0.70 or higher was considered acceptable, indicating that the measurement items were reliable and consistently measured their respective variables.

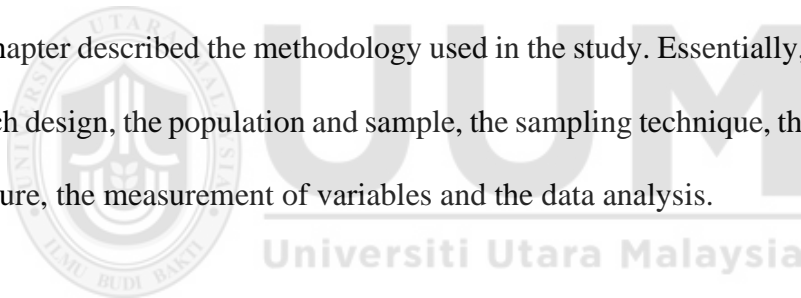
To examine the relationships between the study variables, Pearson’s correlation analysis was employed. Pearson’s correlation coefficient is suitable for this study because the variables were measured on continuous scales and the analysis aimed to determine the strength and direction of linear relationships between job stress, work–family conflict, workload, and work–life balance. This analysis provided preliminary insights into how the independent variables are associated with the dependent variable. Finally, multiple regression analysis was conducted to examine the predictive effects of job stress, work–family conflict, and workload on work–life balance. Multiple regression is appropriate when the objective is to assess the simultaneous influence of multiple independent variables on a single dependent variable. This technique allows the study to determine the relative contribution and significance of each predictor

while controlling for the effects of other variables. The use of multiple regression analysis is consistent with the research objectives and hypotheses of this study, which aim to identify key predictors of employees' work–life balance.

Overall, the combination of descriptive statistics, reliability analysis, correlation analysis, and multiple regression analysis provided a comprehensive and rigorous approach to data analysis. These statistical techniques ensured that the findings were valid, reliable, and suitable for addressing the research questions and objectives of this study.

3.8 Summary

This chapter described the methodology used in the study. Essentially, it explained the research design, the population and sample, the sampling technique, the data collection procedure, the measurement of variables and the data analysis.



CHAPTER FOUR

FINDINGS

4.1 Introduction

This chapter presents the findings obtained from the data collected for this study. It begins by outlining the overall response rate, followed by a detailed description of the demographic profile of the respondents. The analyses conducted in this chapter aim to provide a clear picture of how job stress, work-family conflict, and job demand relate to employees' work-life balance within the semiconductor industry in Malaysia. The results are organized systematically to ensure a coherent understanding of the patterns and relationships observed in the data. First, descriptive statistics are presented to summarize the key characteristics of the respondents and the distribution of each variable. This is followed by the reliability analysis to confirm the internal consistency of the measurement instruments used in the questionnaire. Subsequently, correlation analysis is conducted to identify the direction and strength of the relationships between the independent and dependent variables. Finally, regression analysis is used to determine the extent to which job stress, work-family conflict, and job demands contribute to variations in work-life balance.

Overall, the findings in this chapter serve as the foundation for the discussion in the next chapter, where the results are interpreted in relation to the research objectives, hypotheses, and existing literature. Through these analyses, the study aims to offer meaningful insights into the factors that shape work-life balance among employees in the Malaysian semiconductor sector.

4.2 Response Rate

In this study, a total of three hundred and sixty (360) survey questionnaires were distributed to employees in the Penang semiconductor industry during the data collection period (approximately September – October 2025). At the end of this field period, 342 questionnaires had been returned by respondents. All returned surveys were then examined for completeness, eight questionnaires contained missing data and were deemed incomplete, and thus were excluded from further analysis. As a result, 334 fully completed questionnaires remained for data analysis. The final response rate was calculated as the ratio of valid responses to the total number of questionnaires distributed, expressed as a percentage. With 334 usable responses out of 360 distributed, the response rate was 92.7%.

Table 4.1 : Response Rate

Description	Total (set)	Percentage (%)
Questionnaires Distributed	360	100
Questionnaires Returned	342	95
Incomplete/Discarded	8	2.22
Valid Responses	334	92.7

4.3 Profile of Respondent

Table 4.2 below represents information earned regarding demographic characteristics of respondents accumulated. This section presents the demographic characteristics of the respondents who participated in this study. Understanding the demographic distribution helps provide context regarding the background of the employees working in the semiconductor industry in Malaysia. A total of 334 respondents completed the questionnaire, and their demographic profiles are summarized in Table 4.2.

The demographics covered include gender, age, work experience, department, and job level. The distribution indicates diversity across age groups, job categories, and functional areas, which strengthens the generalizability of the findings within the semiconductor industry.

The demographic analysis shows that out of the 334 respondents, 158 (47.3%) were male and 176 (52.7%) were female, indicating a relatively balanced gender distribution among employees in the semiconductor industry.

In terms of age, the largest group consisted of employees aged 25–34 years, representing 149 respondents (44.6%). This is followed by 94 respondents (28.1%) aged 35–44 years, 55 respondents (16.5%) aged 45–54 years, and 36 respondents (10.8%) aged 55 years and above. These figures suggest that the workforce is largely composed of young and middle-aged adults.

For work experience, 131 respondents (39.2%) reported having 1–3 years of experience, making it the most common category. This is followed by 108 respondents (32.3%) with 4–6 years of experience and 95 respondents (28.4%) who had more than 6 years of experience. This distribution demonstrates a healthy mix of early-career and seasoned employees.

With regard to department, 101 respondents (30.2%) were from Production/Manufacturing, making it the largest departmental group. This is followed by Engineering/Technical with 85 respondents (25.4%), Administration/Human Resources/IT/Finance with 93 respondents (27.8%), and Quality Assurance with 55

respondents (16.5%). These figures reflect a diverse representation across core and support functions in semiconductor operations.

In terms of job level, the highest representation came from Executive/Supervisory roles, comprising 106 respondents (31.7%). This is followed by 94 respondents (28.1%) in Operator/Technician roles, 80 respondents (24.0%) working as Engineers, and 54 respondents (16.2%) holding Managerial or higher-level positions. This distribution indicates a broad mix of operational, technical, supervisory, and managerial staff within the sample.

Table 4.2 : Respondents Profile

Demographic	Categories	Frequency	Percentage (%)
Gender	Male	158	47.3
	Female	176	52.7
Age	25 – 34 years	149	44.6
	35-44years	94	28.1
	45-54years	55	16.5
	55 years and above	36	10.8
Work Experience	1-3 years	131	39.2
	4-6 years	108	32.3
	More than 6 years	95	28.4
Department	Production / Manufacturing	101	30.2
	Engineering / Technical	85	25.4
	Quality Assurance	55	16.5
	Administration/Human	93	27.8
	Resources / IT and Finance		
Job Level	Operator / Technician	94	28.1
	Engineer	80	24.0
	Executive / Supervisor	106	31.7
	Manager and above	54	16.2

4.4 Descriptive Analysis

Descriptive analysis was conducted to examine the general level of each main construct in this study, namely Job Stress, Workload, Work–Family Conflict, and Work–Life Balance. The descriptive statistics presented in the SPSS output provide insight into the overall tendency and variability of respondents' perceptions toward the constructs measured in this research. Because each construct was measured using Likert-type items (1 = Strongly Disagree to 5 = Strongly Agree), the mean values represent the average agreement level among the respondents, while the standard deviations reflect the dispersion of responses.

Table 4.3 Descriptive Analysis of the Variables

Variable (scale)	Mean	Standard Deviation
Job Stress	3.173	0.989
Workload	3.318	0.948
Work family Conflict	3.192	1.101
Work – life Balance	3.247	1.091

The results indicate that respondents reported a moderate level of work–life balance, with a mean score of 3.24. This suggests that, on average, employees neither strongly agreed nor strongly disagreed that they were able to balance work responsibilities with personal and family demands. A mean slightly above the midpoint (3.00) indicates that although some employees may manage their work–life responsibilities fairly well, many still face challenges in achieving a satisfactory balance. The standard deviation of 1.091 shows a moderate level of variability, which means that employees differed considerably in their experiences. Some may have reported strong work–life balance, while others indicated significant difficulties, likely reflecting differences in job

demands, shift schedules, and personal circumstances within the semiconductor industry.

For Job Stress, the mean value of 3.173 shows that respondents experienced a moderate amount of stress in their work. This falls close to the “Neutral to Agree” range, suggesting that stress is present but not overwhelmingly high. The standard deviation of 0.989 indicates a moderate spread of responses. This variability suggests that while some employees experience relatively low workplace stress, others may face considerably higher pressure. This is consistent with the nature of semiconductor operations, where factors such as role complexity, production deadlines, and job level differences contribute to variations in stress levels among employees.

Workload recorded a mean score of 3.318, which is the highest among the four variables. This indicates that employees generally perceive their workload to be moderately high, leaning slightly towards agreement that their job responsibilities are demanding. A mean above 3.30 suggests that workload is a salient issue within the organisation. The standard deviation of 0.947 indicates moderate variability. Employees are not uniform in their workload perceptions—those in production or technical departments may experience heavier demands compared to those in administrative functions, explaining the observed variation.

For Work–Family Conflict, the mean score of 3.191 shows a moderate level of conflict between work responsibilities and family roles. This suggests that employees occasionally experience interference from work that affects family or personal commitments. The standard deviation of 1.101 is slightly higher than those of the other

constructs, indicating broader variation among respondents. This means that while some employees report minimal conflict, others experience much greater difficulty balancing work and family responsibilities. Again, this may be influenced by shift patterns, personal circumstances, and differences in job responsibilities within the semiconductor environment.

Across all variables, the skewness values are negative but close to zero (ranging from -0.035 to -0.149), indicating that the data are approximately normally distributed. This is important because normality of distribution supports the validity of subsequent inferential analyses such as correlation and regression. The small negative skewness simply means that responses were slightly more concentrated on the higher end of the Likert scale, which is expected in organisational studies where employees often indicate moderate agreement with work-related statements.

Overall, the descriptive results suggest that employees in this semiconductor organisation experience moderate levels of stress, workload, and work–family conflict, while also facing moderate challenges in achieving work–life balance. The standard deviations show that these experiences vary across individuals, reflecting the diverse roles, job levels, and personal circumstances represented in the sample. The descriptive analysis thus provides a meaningful foundation for interpreting the relationships tested in the subsequent correlation and regression analyses presented in the next sections.

4.5 Pearson Corelation Analysis

This section presents the Pearson correlation analysis conducted to examine the relationships between job stress, workload, work–family conflict, and work–life balance. Pearson’s correlation coefficient (r) measures the strength and direction of the association between variables. The correlation values range between -1 and $+1$, where values closer to $+1$ indicate a strong positive relationship, values near -1 indicate a strong negative relationship, and values around zero suggest little or no linear association. All significance levels in the analysis were set at $p < 0.01$, indicating that the relationships identified are statistically significant at the 1% level.

Table 4.4 Output of Pearson Correlation Analysis

Variables	WLB	JS	WL	WFC
Worklife Balance (WLB)	1			
Job Stress (JS)	-0.717**	1		
Workload (WL)	-0.776**	0.800**	1	
Work family Conflict (WFC)	-0.831**	0.740**	0.787**	1

** Correlation is significant at the 0.01 level (2- tailed)

The results of the Pearson correlation analysis are presented in Table 4.4. As shown in the table, job stress has a strong and statistically significant negative relationship with work–life balance ($r = -0.717$, $p < .001$). This finding indicates that as job stress increases, employees’ work–life balance deteriorates. In other words, employees who experience higher levels of stress at work, such as emotional strain, pressure, and tension, are more likely to struggle in balancing their work responsibilities with personal and family life. The strength of this relationship suggests that job stress is an important factor influencing employees’ ability to maintain balance, particularly in a demanding industry such as semiconductor manufacturing.

Similarly, workload demonstrates a strong negative relationship with work–life balance ($r = -0.776$, $p < .001$). This result implies that employees who perceive their workload as excessive tend to experience poorer work–life balance. The negative correlation indicates that higher job demands, longer working hours, and time pressure reduce the time and energy available for non-work activities, thereby making it difficult for employees to manage personal and family responsibilities effectively. The strength of this relationship highlights workload as a significant challenge in the semiconductor industry, where employees are often required to meet strict production targets and operate under continuous performance pressure.

Work–family conflict shows the strongest negative relationship with work–life balance among all variables ($r = -0.831$, $p < .001$). This very strong correlation suggests that as interference between work and family roles increases, employees' work–life balance declines substantially. Employees who frequently experience work demands encroaching on family time, such as missing family activities or being mentally preoccupied with work during personal time, are more likely to perceive severe imbalance between their work and personal lives. This finding emphasizes the central role of role conflict in shaping employees' overall perception of balance and supports the notion that work–family conflict is a critical barrier to achieving healthy work–life integration.

In addition to examining the relationships between the independent variables and work–life balance, the correlations among the independent variables were also analyzed. The results indicate a strong positive relationship between job stress and

workload ($r = 0.800$, $p < .001$), suggesting that employees who experience heavier workloads are more likely to report higher levels of job stress. This finding is expected, as excessive workload often leads to increased pressure, fatigue, and emotional strain. Furthermore, work–family conflict is positively correlated with job stress ($r = 0.740$, $p < .001$) and workload ($r = 0.787$, $p < .001$). These results indicate that higher workload and stress levels contribute to greater interference between work and family roles, reinforcing the interconnected nature of job demands in the workplace.

Overall, the Pearson correlation analysis reveals that all independent variables—job stress, workload, and work–family conflict—are significantly related to work–life balance. The negative correlations indicate that higher levels of job demands and role conflict are associated with poorer work–life balance among employees in the semiconductor industry. Among the variables, work–family conflict exhibits the strongest relationship with work–life balance, followed by workload and job stress. These findings support the theoretical expectation that excessive job demands and role interference undermine employees’ ability to maintain balance between work and personal life. The strong and significant correlations also provide a sound basis for conducting multiple regression analysis to further examine the combined predictive effects of these variables on work–life balance.

4.6 Multiple Regression Analysis

Multiple regression analysis was conducted to examine the combined influence of job stress, workload, and work–family conflict on employees’ work–life balance. This analysis allows the study to determine how well the three predictors, as a group, explain variations in work–life balance among employees in the semiconductor

industry. The results from the Model Summary, ANOVA, and Coefficients tables are presented and interpreted in detail in this section.

Table 4.5 Model Summary

R	R Square	Adjusted R Square	Std Error of the Estimate
0.856	0.733	0.730	0.56688

The Model Summary indicates that the three predictors collectively explain a substantial proportion of variance in work–life balance. The regression model recorded an R-value of .856, demonstrating a very strong relationship between the set of independent variables and the dependent variable. The R Square value of .733 shows that approximately 73.3% of the variance in work–life balance is accounted for by job stress, workload, and work–family conflict. This is a high explanatory power for a social science study, suggesting that these three factors are major contributors to how employees manage balance between work and personal life. The Adjusted R Square (.730) further supports the robustness of the model by correcting for sample size and number of predictors, indicating that the model remains stable and generalisable.

Table 4.6 Multiple Regression Analysis

Model	Unstandardized Coefficient(B)	Std Error	Standardized Coefficient (Beta)	t	Sig
(Constant)	5.847	0.115	-	50.835	<.001
Jobstress	-0.109	0.055	-.099	-1.992	0.047
Workload	-0.303	0.062	-.263	-4.848	<.001
Work- family conflict	-0.546	0.048	-.551	-11.395	<.001

The coefficients table provides detailed insight into the individual contribution of each independent variable to work–life balance. Work–family conflict emerged as the strongest predictor of work–life balance, with a standardized beta coefficient of $\beta =$

-0.551 and a statistically significant p-value ($p < .001$). The negative coefficient indicates that higher levels of work–family conflict are associated with poorer work–life balance. This finding suggests that when work responsibilities increasingly interfere with family and personal life, employees experience greater imbalance, making it difficult to meet both work and non-work demands effectively. Therefore, H1 is accepted.

Workload was also found to be a significant predictor of work–life balance, with a standardized beta coefficient of $\beta = -0.263$ and a p-value of less than .001. This result indicates that heavier workload contributes significantly to deterioration in employees’ work–life balance. Employees facing excessive job demands, long working hours, and high performance expectations tend to allocate more time and energy to work, leaving insufficient resources for personal recovery and family responsibilities. This finding reflects the demanding nature of the semiconductor industry, where workload pressure is a persistent challenge. Thus, H2 is accepted.

Job stress, although contributing the smallest effect among the predictors, was still found to be statistically significant in predicting work–life balance ($\beta = -0.099$, $p = .047$). This indicates that increases in job stress are associated with poorer work–life balance, even when the effects of workload and work–family conflict are controlled. While the magnitude of the effect is comparatively lower, the result suggests that emotional strain, tension, and psychological pressure at work continue to influence employees’ ability to maintain balance, particularly when stress levels exceed their coping capacity. Therefore, H3 is accepted.

Overall, the multiple regression results demonstrate that job stress, workload, and work–family conflict significantly and negatively influence work–life balance among employees in the semiconductor industry. Among these factors, work–family conflict exerts the greatest impact, followed by workload and job stress. These findings indicate that role interference and excessive job demands are key contributors to work–life imbalance. Therefore, all three hypotheses (H1, H2, and H3) are supported. The results highlight the importance of organizational strategies aimed at managing workload, reducing job stress, and minimizing work–family conflict in order to improve employees’ work–life balance and overall well-being.

4.7 Summary

This chapter presented the findings of the study based on data collected from employees working in the Malaysian semiconductor industry. The analyses were conducted to address the research objectives and to examine the relationships between job stress, workload, work–family conflict, and work–life balance. Both descriptive and inferential statistical techniques were employed to provide a comprehensive understanding of the study variables and their interrelationships.

The descriptive analysis indicated that respondents experienced moderate levels of job stress, workload, and work–family conflict, with mean scores slightly above the midpoint of the five-point Likert scale. Similarly, the mean score for work–life balance suggested that employees face moderate challenges in balancing their work and personal lives. The standard deviations showed moderate variability across all variables, indicating differences in employees’ experiences depending on factors such

as job roles, workload intensity, and personal circumstances within the semiconductor industry.

Reliability analysis confirmed that all measurement scales used in this study demonstrated strong internal consistency, with Cronbach's Alpha values exceeding the recommended threshold of 0.70. This indicates that the instruments used to measure job stress, workload, work-family conflict, and work-life balance were reliable and suitable for further statistical analysis.

The Pearson correlation analysis revealed that job stress, workload, and work-family conflict were significantly and negatively related to work-life balance. Among these variables, work-family conflict exhibited the strongest relationship with work-life balance, followed by workload and job stress. The findings indicate that higher levels of job demands and role conflict are associated with poorer work-life balance among employees. In addition, strong positive correlations were observed among the independent variables, suggesting that job stress, workload, and work-family conflict are closely interrelated and tend to reinforce one another in the workplace.

The multiple regression analysis further demonstrated that job stress, workload, and work-family conflict collectively explained a substantial proportion of variance in work-life balance. The regression model accounted for 73.3% of the variance in work-life balance, indicating high explanatory power. Among the predictors, work-family conflict emerged as the most influential factor, followed by workload and job stress. All three predictors were found to have a significant negative effect on work-life balance, thereby supporting all the proposed hypotheses in this study.

In conclusion, the findings presented in this chapter provide strong empirical evidence that excessive job demands and role interference significantly undermine employees' ability to maintain a healthy balance between work and personal life. These results highlight the importance of managing work-related stressors and minimizing work–family conflict to improve employee well-being in the semiconductor industry. The next chapter discusses these findings in greater detail by linking them to existing literature, theoretical perspectives, and practical implications.



CHAPTER FIVE

DISCUSSIONS AND CONCLUSIONS

5.1 Introduction

This chapter discusses the findings derived from the statistical analyses presented in Chapter Four. The discussion is organized according to the research objectives and hypotheses, linking the empirical results to relevant literature, Role Theory as the underpinning theoretical framework, and the contextual realities of the Malaysian semiconductor industry. The interpretations are based on the regression results obtained through SPSS, which indicate that job stress, workload, and work–family conflict have significant effects on employees’ work–life balance. Consistent with Role Theory, these findings suggest that employees who experience excessive role demands, role overload, and inter-role conflict arising from competing work and family responsibilities are more likely to experience difficulties in maintaining work–life balance, particularly within the high-demand environment of the semiconductor industry. The chapter subsequently presents the theoretical and practical implications of the findings, followed by the study’s limitations and recommendations for future research, before concluding the chapter.

5.2 Discussion of Findings

5.2.1 Relationship Between Job Stress and Work–Life Balance

The findings of this study reveal that job stress has a statistically significant relationship with work–life balance among employees in the semiconductor industry. The multiple regression analysis showed that job stress significantly predicts work–life balance ($\beta = -0.099$, $p = .047$). As higher scores on the work–life balance scale

represent better balance, this result indicates that increasing levels of job stress are associated with poorer work–life balance. Although job stress recorded the smallest standardized beta coefficient among the predictors, its effect remains statistically significant, suggesting that job stress continues to play an important role in influencing employees’ ability to balance work and personal life.

Job stress is commonly defined as a condition that arises when job demands exceed an individual’s capacity to cope, leading to psychological strain and emotional exhaustion (Beehr & Newman, 1978; Lazarus & Folkman, 1984). In the semiconductor industry, employees are frequently exposed to high work demands, strict production deadlines, and continuous performance pressure. These demanding conditions intensify stress levels and reduce employees’ available time and energy for non-work roles, which in turn negatively affects their ability to maintain work–life balance.

From a Role Theory perspective, this relationship can be explained through the concept of role strain, which occurs when individuals experience difficulty in meeting the expectations of multiple roles simultaneously (Kahn et al., 1964). High job stress increases the dominance of work roles, limiting employees’ capacity to fulfil family and personal responsibilities. Consequently, imbalance arises when work-related demands interfere with non-work roles, resulting in reduced work–life balance. These findings are consistent with prior empirical research indicating that job stress negatively affects employees’ ability to manage competing work and family roles in high-demand work environments (Yusoff et al., 2018). Therefore, Hypothesis H1 is supported.

5.2.2 Relationship Between Work–Family Conflict and Work–Life Balance

The results of this study indicate that work–family conflict has a strong and statistically significant relationship with work–life balance. The regression analysis revealed that work–family conflict is the most influential predictor of work–life balance ($\beta = -0.551$, $p < .001$). This finding suggests that as work–family conflict increases, employees experience substantially poorer work–life balance. Among all predictors examined in this study, work–family conflict exerts the greatest impact on employees' ability to balance work and personal life.

Work–family conflict occurs when the demands of work interfere with family responsibilities, making it difficult for individuals to fulfil both roles effectively (Greenhaus & Beutell, 1985). In the semiconductor industry, long working hours, shift work, and high job demands often limit employees' availability for family and personal activities. As work intrudes into family life, employees may experience feelings of guilt, strain, and dissatisfaction, which significantly undermine their perception of balance.

This finding is strongly supported by previous studies. Noor and Maad (2008) found that excessive job demands and time pressure increase work–family conflict, leading to poorer work–life balance. Similarly, Lingard and Francis (2005) reported that persistent work–family conflict results in stress, fatigue, and reduced job satisfaction. Meta-analytic evidence also confirms that work–family conflict is negatively related to well-being and balance while being positively associated with stress and burnout (Amstad et al., 2011). The current study reinforces these findings within the Malaysian

semiconductor context, highlighting work–family conflict as a critical challenge faced by employees.

From a Role Theory perspective, this relationship can be explained through the concept of inter-role conflict, which arises when the demands of one role make it difficult to fulfil the expectations of another role (Kahn et al., 1964). High levels of work–family conflict indicate that work-role demands dominate family roles, resulting in role interference and strain. Consequently, employees struggle to maintain equilibrium between work and personal life, leading to reduced work–life balance. Therefore, the findings support Hypothesis H2 and confirm that work–family conflict plays a central role in shaping employees’ work–life balance in high-demand work environments.

5.2.3 Relationship Between Workload and Work–Life Balance

The findings of this study demonstrate that workload has a statistically significant relationship with work–life balance. The regression analysis shows that workload significantly predicts work–life balance ($\beta = -0.263$, $p < .001$), indicating that heavier workload contributes to poorer work–life balance among employees. This result suggests that employees facing excessive job demands, time pressure, and long working hours are more likely to experience difficulties in balancing work and personal responsibilities.

Workload is widely recognized as a central job demand that consumes employees’ physical and psychological resources (Karasek, 1979; Demerouti et al., 2001). In the semiconductor industry, employees are often required to meet strict production targets

while maintaining high precision and quality standards. Such conditions increase both quantitative and qualitative workload, leaving employees with limited time and energy for non-work activities. Consequently, high workload reduces opportunities for rest, recovery, and family engagement, leading to work–life imbalance.

This finding is consistent with previous research. Noor (2011) reported that excessive workload and long working hours are among the primary factors contributing to work–life balance challenges among Malaysian employees. Shafiqul and Jayaweera (2019) also found that manufacturing employees experiencing heavy workload reported lower levels of work–life balance due to constant job pressure. The present study extends these findings by confirming that workload remains a significant determinant of work–life balance in the semiconductor sector, where operational demands are particularly intense.

From a Role Theory perspective, this relationship can be explained through the concept of role overload, which occurs when the quantity or intensity of role demands exceeds an individual’s available time and energy (Kahn et al., 1964). Excessive workload increases the dominance of work roles, leaving employees with insufficient resources to fulfil family and personal responsibilities. As a result, employees experience difficulty in managing multiple role expectations, leading to diminished work–life balance. Therefore, the findings support Hypothesis H3 and highlight workload as a significant factor influencing employees’ work–life balance.

5.3 Implications of the Study

This study has both theoretical and practical implications

5.3.1 Theoretical Implications

From a theoretical perspective, this study contributes to the work–life balance literature by providing empirical support for Role Theory in explaining employees’ experiences within the semiconductor industry. The findings demonstrate that job stress, workload, and work–family conflict represent distinct but interrelated role demands that negatively affect employees’ ability to maintain work–life balance. Consistent with Role Theory, the results suggest that when employees face excessive work–role demands that compete with family and personal roles, they experience role overload, role strain, and inter–role conflict, leading to diminished work–life balance.

This study further extends existing literature by empirically confirming that work–family conflict is the most dominant predictor of work–life balance, followed by workload and job stress. This finding reinforces the central premise of Role Theory, which posits that conflict between multiple roles has a stronger impact on individual well-being than single–role stressors. By integrating job stress, workload, and work–family conflict into a single regression model, this study provides a more comprehensive theoretical explanation of how multiple role–related demands collectively influence work–life balance, rather than examining these variables in isolation.

In addition, this research contributes to the limited body of knowledge on work–life balance within the Malaysian semiconductor industry, a context that has received relatively little scholarly attention. By applying Role Theory to a high–demand, technology–driven manufacturing environment characterized by long working hours, strict production targets, and high performance expectations, this study extends the

applicability of Role Theory beyond traditional service-oriented settings. The findings therefore highlight the robustness and relevance of Role Theory in explaining work–life balance outcomes in industrial contexts where competing role demands are particularly pronounced.

5.3.2 Practical Implications

The findings of this study provide important practical implications for organizations, particularly human resource practitioners and managers in the semiconductor industry. Given that work–family conflict emerged as the strongest predictor of work–life balance, organizations should prioritize strategies that minimize inter-role conflict between work and family responsibilities. The implementation of flexible work arrangements, such as flexible scheduling, effective shift rotation management, and family-friendly workplace policies, can help employees manage competing role demands more effectively.

Workload management is another critical area requiring attention. The significant influence of workload on work–life balance indicates that excessive role demands contribute to role overload, which limits employees’ ability to fulfil non-work roles. Organizations should regularly review workload allocation, ensure adequate staffing, and set realistic performance expectations. Providing sufficient rest periods, encouraging leave utilization, and allowing recovery time are essential to prevent prolonged role strain and promote healthier work–life balance.

Although job stress demonstrated a comparatively smaller effect, its significant relationship with work–life balance highlights the importance of reducing role strain

arising from sustained work pressure. Organizations may introduce stress management programs, employee assistance initiatives, and supportive supervisory practices to help employees cope with demanding role expectations. Managers who provide clear role clarification, emotional support, and realistic job expectations can reduce ambiguity and strain associated with work roles.

Overall, by addressing work–family conflict, workload, and job stress as interrelated role demands, organizations can create a work environment that enables employees to balance multiple roles more effectively. Such practices are likely to enhance employee well-being, improve job satisfaction, and support talent retention, which is particularly critical in the semiconductor industry where skilled employees are highly sought after.

5.4 Limitations of the Study

While the study provides meaningful insights, several limitations should be acknowledged to interpret the findings accurately. The research employed a cross-sectional design, which captures employee perceptions at only one point in time. This structure restricts the ability to establish causal relationships and does not account for fluctuations in stress, workload, or work–family conflict that may occur over longer periods. Another limitation arises from the use of self-report questionnaires, which may introduce response bias. Participants may have provided socially desirable answers or underreported negative experiences due to concerns about confidentiality or fear of judgement.

The scope of the study was also limited to employees within the Malaysian semiconductor industry, which has a distinct working culture and set of operational

demands. This means the findings may not be directly applicable to other industries with different work structures or expectations. Additionally, the positive coefficients observed particularly for job stress and workload may reflect contextual interpretations unique to the semiconductor field, where demanding work is normalised and sometimes associated with job competence or satisfaction. These nuances highlight the importance of situating the results within the specific characteristics of the population studied.

5.5 Recommendations for Future Research

Future research could benefit from methodological enhancements that deepen the understanding of work–life balance in demanding occupational contexts. Longitudinal studies would be particularly valuable, as they could reveal how job stress, workload, and work–family conflict evolve over time and how sustained exposure to these variables affects employees’ personal and professional lives. Qualitative studies, such as interviews or focus group discussions, may provide richer insight into the lived experiences of semiconductor employees, enabling researchers to explore coping strategies, perceptions of organizational support, and the cultural factors that shape work–life expectations.

Expanding the research to include other industries or geographical regions may also help determine whether the patterns identified in this study are specific to the semiconductor field or represent broader workforce trends. Finally, future studies may incorporate moderating or mediating variables such as organizational culture, personality traits, leadership style, or social support systems. These factors may explain why employees respond differently to similar job demands and could offer a

more comprehensive understanding of how work–life balance is constructed and maintained in diverse organizational settings.

5.6 Conclusion

This study was conducted to examine the relationship between job stress, workload, work–family conflict, and work–life balance among employees in the Malaysian semiconductor industry. Using a quantitative research approach and data collected from 334 respondents, the study employed descriptive analysis, reliability analysis, Pearson correlation, and multiple regression analysis to achieve its research objectives.

The findings reveal that job stress, workload, and work–family conflict are all significantly related to work–life balance. Correlation analysis showed strong negative relationships between the independent variables and work–life balance, indicating that higher levels of job demands and role conflict are associated with poorer balance between work and personal life. The regression analysis further demonstrated that these variables collectively explain a substantial proportion of variance in work–life balance, with work–family conflict emerging as the strongest predictor, followed by workload and job stress.

These results highlight that employees in the semiconductor industry face considerable challenges in maintaining work–life balance due to the demanding nature of their work environment. Long working hours, high workload, and interference between work and family responsibilities significantly undermine employees’ ability to achieve balance, affecting their overall well-being.

In conclusion, this study underscores the importance of managing workloads and reducing work–family conflict to promote healthier work–life balance outcomes. This research contributes to both theory and practice and offers meaningful insights for organizations seeking to enhance employee well-being and organizational sustainability. Future research may build upon these findings by exploring additional variables, such as organizational support or leadership styles, and by employing longitudinal or qualitative approaches to gain deeper insights into work–life balance dynamics.



REFERENCES

- Ahmad, A., & Zainol, N. (2020). Job stress and employee well-being in the semiconductor sector. *Malaysian Journal of Industrial Studies*, *15*(3), 45–52.
- Allen, T. D., Herst, D. E. L., Bruck, C. S., & Sutton, M. (2000). Consequences associated with work-to-family conflict: A review and agenda for future research. *Journal of Occupational Health Psychology*, *5*(2), 278–308.
<https://doi.org/10.1037/1076-8998.5.2.278>
- Amstad, F. T., Meier, L. L., Fasel, U., Elfering, A., & Semmer, N. K. (2011). A meta-analysis of work–family conflict and various outcomes. *Journal of Occupational Health Psychology*, *16*(2), 151–169.
<https://doi.org/10.1037/a0022170>
- Bagger, J., & Li, A. (2012). Being important matters: The impact of work and family centralities on the family-to-work conflict–satisfaction relationship. *Human Relations*, *65*(4), 473–500. <https://doi.org/10.1177/0018726711430557>
- Bakker, A. B., & Demerouti, E. (2007). The job demands–resources model: State of the art. *Journal of Managerial Psychology*, *22*(3), 309–328.

- Beehr, T. A., & Newman, J. E. (1978). Job stress, employee health, and organizational effectiveness: A facet analysis, model, and literature review. *Personnel Psychology*, 31(4), 665–699. <https://doi.org/10.1111/j.1744-6570.1978.tb02118.x>
- Bian, X., & Mohd Sukor, M. S. (2024). The mediating effect of work-life balance on the relationship between work-family conflict and psychological well-being among Chinese working women. *Scientific Reports*, 14(1), 27421.
- Blau, P. M. (1964). *Exchange and power in social life*. John Wiley & Sons.
- Brugmans, S., Burkacky, O., Mayer-Haug, K., Pedroni, A., Poltronieri, G., Roundtree, T., & Weddle, B. (2024). *How semiconductor companies can fill the expanding talent gap*. McKinsey & Company.
- Bunyan, J. (2023, June 22). Poll: Only four in 10 Malaysians happy with work-life balance, over half regularly clocking more than eight hours a day. *Malay Mail*. <https://www.malaymail.com/news/malaysia/2023/06/22/poll-only-four-in-10-malaysians-happy-with-work-life-balance-over-half-regularly-clocking-more-than-eight-hours-a-day/75779>
- Byron, K. (2005). *A meta-analytic review of work–family conflict and its antecedents*. *Journal of Vocational Behavior*, 67(2), 169–198. <https://doi.org/10.1016/j.jvb.2004.08.009>

Campbell, C. (2024). *How “friendshoring” made Southeast Asia pivotal to the AI revolution.* <https://time.com/7015000/ai-semiconductor-chips-malaysia-anwar/>

Carlson, D. S., Kacmar, K. M., & Williams, L. J. (2000). *Construction and initial validation of a multidimensional measure of work–family conflict.* *Journal of Vocational Behavior*, 56(2), 249–276. <https://doi.org/10.1006/jvbe.1999.1713>

Chen, Y., Li, S., & Zhang, L. (2021). Work–family conflict and job stress among employees in high-technology industries: Evidence from the semiconductor sector. *Journal of Asian Business and Economic Studies*, 28(3), 245–260. <https://doi.org/10.1108/JABES-2020-0123>

Clark, S. C. (2000). Work/family border theory: A new theory of work/family balance. *Human Relations*, 53(6), 747–770.

Cooper, C. L., Dewe, P. J., & O’Driscoll, M. P. (2001). *Organizational stress: A review and critique of theory, research, and applications.* Sage Publications.

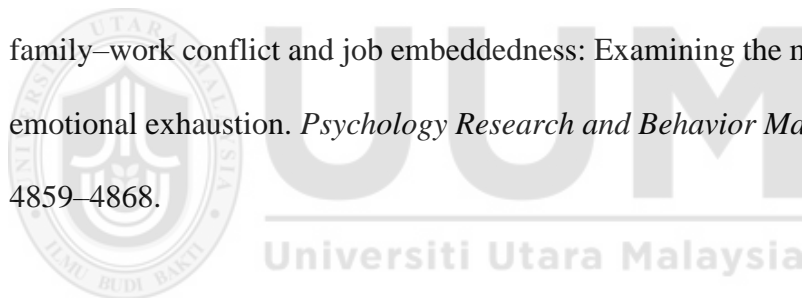
Cropanzano, R., & Mitchell, M. S. (2005). Social exchange theory: An interdisciplinary review. *Journal of Management*, 31(6), 874–900. <https://doi.org/10.1177/0149206305279602>

Demerouti, E., Bakker, A. B., Nachreiner, F., & Schaufeli, W. B. (2001). The job demands–resources model of burnout. *Journal of Applied Psychology*, 86(3), 499–512.

Department of Statistics Malaysia. (2023). *Labour force survey report, Malaysia*. DOSM.

Department of Statistics Malaysia. (2025). *Labour productivity, Malaysia (Q1 2025)*. DOSM.

Dukhaykh, S. (2023). Exploring the relationship between work–family conflict, family–work conflict and job embeddedness: Examining the mediating role of emotional exhaustion. *Psychology Research and Behavior Management*, 4859–4868.



El Keshky, M. E. S., & Sarour, E. O. (2024). The relationships between work-family conflict and life satisfaction and happiness among nurses. *Frontiers in Public Health*, 12, 1340074.

Eisenberger, R., Armeli, S., Rexwinkel, B., Lynch, P. D., & Rhoades, L. (2001). Reciprocation of perceived organizational support. *Journal of Applied Psychology*, 86(1), 42–51. <https://doi.org/10.1037/0021-9010.86.1.42>

Emerson, R. M. (1976). Social exchange theory. *Annual Review of Sociology*, 2, 335–362. <https://doi.org/10.1146/annurev.so.02.080176.002003>

Ganster, D. C., & Rosen, C. C. (2013). Work stress and employee health: A multidisciplinary review. *Journal of Management*, 39(5), 1085–1122. <https://doi.org/10.1177/0149206313475815>

Gragnano, A., Simbula, S., & Miglioretti, M. (2020). Work–life balance: Weighing the importance of work–family conflict and work–family facilitation. *Journal of Personnel Psychology*, 19(1), 40–49. <https://doi.org/10.1027/1866-5888/a000243>

Goh, M. (2024). *War on talent: Malaysia's semiconductor industry plagued by lack of skilled workers*. Channel News Asia. <https://www.channelnewsasia.com>

Greenhaus, J. H., & Beutell, N. J. (1985). Sources of conflict between work and family roles. *Academy of Management Review*, 10(1), 76–88.

Greenhaus, J. H., Collins, K. M., & Shaw, J. D. (2003). The relation between work–family balance and quality of life. *Journal of Vocational Behavior*, 63(3), 510–531. [https://doi.org/10.1016/S0001-8791\(02\)00042-8](https://doi.org/10.1016/S0001-8791(02)00042-8)

Greenhaus, J. H., & Allen, T. D. (2011). Work–family balance: A review and extension of the literature. In J. C. Quick & L. E. Tetrick (Eds.), *Handbook of occupational health psychology* (2nd ed., pp. 165–183). American Psychological Association. <https://doi.org/10.1037/12304-009>

- Haar, J. M., Russo, M., Suñe, A., & Ollier-Malaterre, A. (2014). Outcomes of work–life balance on job satisfaction and well-being. *Journal of Management*, 40(5), 1396–1421.
- Haslam, D. M., Patrick, P., & Kirby, J. N. (2014). Development and validation of a work-family conflict scale: A study of parents of young children. *Journal of Occupational Health Psychology*, 19(1), 101–114.
- Haslam, D., Filus, A., Morawska, A., Sanders, M. R., & Fletcher, R. (2015). The Work–Family Conflict Scale (WAFCS): Development and initial validation of a self-report measure of work–family conflict for use with parents. *Child Psychiatry & Human Development*, 46(3), 346-357.
- Hayman, J. (2005). Psychometric assessment of an Instrument Designed to Measure Work - life balance. *Research and practice in human resource management*, 13(1), 85-91.
- House, R. J., & Rizzo, J. R. (1972). Role conflict and ambiguity as critical variables in a model of organizational behavior. *Organizational Behavior and Human Performance*, 7(3), 467–505.
- Idris, M. A. (2011). Work stress, coping strategies, and social support among Malaysian employees. *International Journal of Psychology*, 46(3), 157–165.
<https://doi.org/10.1080/00207594.2010.541244>

- Ismail, A., Ibrahim, M., & Jaafar, N. (2019). Cultural values, work–family conflict, and psychological strain among Malaysian employees. *Asian Social Science*, *15*(6), 23–34. <https://doi.org/10.5539/ass.v15n6p23>
- Jayasingam, S., Lee, S. T., & Mohd Zain, K. N. (2023). Demystifying the life domain in work-life balance: A Malaysian perspective. *Current Psychology*, *42*(1), 1–12.
- Johari, J., Yean Tan, F., & Tjik Zulkarnain, Z. I. (2018). Autonomy, workload, work-life balance and job performance among teachers. *International Journal of Educational Management*, *32*(1), 107–120.
- Kahn, R. L., Wolfe, D. M., Quinn, R. P., Snoek, J. D., & Rosenthal, R. A. (1964) *Organizational Stress: Studies in Role Conflict and Ambiguity*
- Karasek, R. A. (1979). Job demands, job decision latitude, and mental strain. *Administrative Science Quarterly*, *24*(2), 285–308.
- Karasek, R. A., & Theorell, T. (1990). *Healthy work: Stress, productivity, and the reconstruction of working life*. Basic Books.
- Kalliath, T., & Brough, P. (2008). Work–life balance: A review of the meaning of the balance construct. *Journal of Management & Organization*, *14*(3), 323–327.

- Kerdpitak, C., & Jermstittiparsert, K. (2020). The effects of workplace stress, work-life balance on turnover intention: An empirical evidence from pharmaceutical industry in Thailand. *Systematic Reviews in Pharmacy*, 11(2), 586-594.
- Kossek, E. E., & Ozeki, C. (1998). *Work-family conflict, policies, and the job-life satisfaction relationship: A review and directions for organizational behavior-human resources research*. *Journal of Applied Psychology*, 83(2), 139-149.
<https://doi.org/10.1037/0021-9010.83.2.139>
- Kossek, E. E., Valcour, M., & Lirio, P. (2014). The sustainable workforce: Organizational strategies for promoting work-life balance and well-being. In C. Cooper & P. Chen (Eds.), *Work and wellbeing* (pp. 295-318). Wiley-Blackwell.
- Krejcie, R. V., & Morgan, D. W. (1970). Determining sample size for research activities. *Educational and Psychological Measurement*, 30, 607-610.
- Lazarus, R. S., & Folkman, S. (1984). *Stress, appraisal, and coping*. Springer.
- Lingard, H., & Francis, V. (2005). The impact of work-family conflict on job stress and satisfaction. *Journal of Managerial Psychology*, 20(1), 74-90.
- Malaysian Investment Development Authority. (2024). *Malaysia's electrical and electronics (E&E) industry*. <https://www.mida.gov.my>

Nawong, E. (2019). *The relationship between job stress and work-family conflict: A study on working women in Social Welfare Department, Kuching* (Doctoral dissertation, Universiti Teknologi MARA Cawangan Sarawak).

Noor, N. M., & Maad, N. M. (2008). Examining the relationship between work-family conflict and job satisfaction among semiconductor employees. *Asian Social Science*, 4(4), 110–118.

Noor, N. M. (2011). Work–life balance and well-being: Gender differences in Malaysia. *Asian Journal of Social Psychology*, 14(2), 118–125.

Omar, M. K., Mohd, I. H., & Ariffin, M. S. (2015). Workload, role conflict, and work–life balance among employees in manufacturing industries. *Asian Social Science*, 11(21), 178–187. <https://doi.org/10.5539/ass.v11n21p178>

OMAR, M. K. (2022). Individual, organizational, and environmental factors affecting work-life balance among Malaysian lecturers amidst COVID-19 pandemic. *Clinical Case Reports: Open Access*.

Rahman, S. Y. A., & Sing, R. D. R. (2024). Remote Work Dynamics in Semiconductor MNCs in Klang Valley: The Impact of Work Environment, Technological Infrastructure, and Work-Life Balance on Employee Productivity Moderated by Gender. *International Review of Management and Marketing*, 14(6), 400.

- Rasdi, R. M., Ismail, M., Uli, J., & Noah, S. M. (2011). Work–family conflict and job satisfaction among Malaysian employees. *Asian Social Science*, 7(2), 53–65.
<https://doi.org/10.5539/ass.v7n2p53>
- Rao, T. S., & Indla, V. (2010). Work, family or personal life: Why not all three? *Indian Journal of Psychiatry*, 52(4), 295–297.
- Roopavathi, S., & Kishore, K. (2021). The impact of work-life balance on employee performance. *Journal of Interdisciplinary Cycle Research*, 12(10), 31–37.
- Schaufeli, W. B., & Taris, T. W. (2014). A critical review of the job demands–resources model. *Journal of Occupational Health Psychology*, 20(4), 369–389.
- Sekaran, U., & Bougie, R. (2010). *Research methods for business: A skill-building approach*. John Wiley & Sons.
- Selye, H. (1976). *The stress of life* (2nd ed.). McGraw-Hill.
- Shafiqul, I., & Jayaweera, T. (2019). Workload and its impact on work-life balance of employees in manufacturing. *International Journal of Human Resource Studies*, 9(3), 120–135.
- Soon, S. W., Bhardwaj, R., Qazi, S. Z., Senathirajah, A. R. B. S., Haque, R., & Krishnasamy, H. N. (2025). Factors influencing talent retention in Malaysia’s semiconductor industry. *Journal of Ecohumanism*, 4(3), 1–33.

Spector, P. E., & Jex, S. M. (1998). *Development of four self-report measures of job stressors and strain: Interpersonal conflict at work scale, organizational constraints scale, quantitative workload inventory, and physical symptoms inventory*. *Journal of Occupational Health Psychology*, 3(4), 356–367.
<https://doi.org/10.1037/1076-8998.3.4.356>

Wong, K. L., Alias, M., & Abdullah, N. A. (2020). Job demands, long working hours, and work–family conflict among engineers in Malaysia. *International Journal of Human Resource Studies*, 10(2), 56–72.
<https://doi.org/10.5296/ijhrs.v10i2.16789>

Wong, L. P., Tan, M. P., & Chan, C. M. (2022). Work-life balance challenges among employees in the semiconductor industry in Malaysia. *Journal of Occupational and Environmental Medicine*, 64(1), 12–20.

Wu, G., Hu, Z., & Zheng, J. (2019). Role stress, job burnout, and job performance. *International Journal of Environmental Research and Public Health*, 16(13), 2394.

Zainuddin, N. (2010). *Penyelidikan saintifik: Asas dan aplikasi*. McGraw-Hill Malaysia.

APPENDIX A : QUESTIONNAIRE

The Relationship Between Job Stress, Work-Family Conflict, Workload and Employee Work-Life Balance among Employees in Semiconductor Industry

Dear Respondent,

I am a Master's candidate at Universiti Utara Malaysia, currently engaged in research on "The Relationship Between Job Stress, Job Demand, Work-Family Conflict and Work- Life Balance among Employees in Semiconductor Manufacturing Company". Your participation in this study is crucial, and I kindly request you to complete the attached questionnaire, which should take approximately 10 minutes of your time.

Please be assured that the questionnaire is designed to be anonymous, and your responses will be utilized solely for academic research purposes.

Thank you for your valuable contribution.

Sincerely,

Shanu Arumugam
Master Human Resource Management,
School Of Business Management
Universiti Utara Malaysia,
Kedah, Malaysia

The Relationship Between Job Stress, Work-Family Conflict, Workload and Employee Work-Life Balance among Employees in Semiconductor Industry

* Indicates required question

Section A : Demographic Information

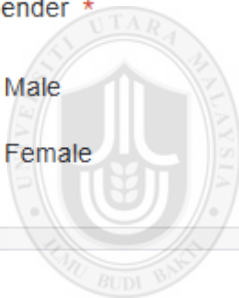
The following information is strictly confidential and will only be used for research purposes. I will be grateful if you could kindly fill in the required information. Please read the following statements and select the appropriate box.

1. Gender *

- Male
- Female

2. Age *

- 25 - 34 years
- 35 - 44 years
- 45 - 54 years
- 55 years and above



UUM
Universiti Utara Malaysia

Working Experience *

- 1-3 years
- 4-6 years
- More than 6 years

Department *

- Production /Manufacturing
- Engineering / Technical
- Quality Assurance
- Administration/Human Resources / IT and Finance

Job level *

- Operator / Technician
- Engineer
- Executive / Supervisor
- Manager and above



Section B : Job Stress

Please read the following statements, and please tick in the appropriate box to indicate your level of agreement for each statement below. The statements are anchored on the following 5-point Likert Scale.

- 1 - Strongly Disagree
- 2 - Disagree
- 3 - Neutral
- 4 - Agree
- 5 - Strongly Agree

To what extent do you agree with the following statement? *

	1	2	3	4	5
My job tends to directly affect my health.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I work under a great deal of tension.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel fidgety or nervous due to my job.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
If I had a different job, my health would probably improve.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Problem associated with work have kept awake at night.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel nervous before attending meeting in my company	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Section C : Workload

Please read the following statements and please tick in the appropriate box to indicate your level of agreement for each statement below. The statements are anchored on the following 5-point Likert Scale.

- 1 - Strongly Disagree
- 2 - Disagree
- 3 - Neutral
- 4 - Agree
- 5 - Strongly Agree

To what extent do you agree with the following statement? *

	1	2	3	4	5
I feel that there are too many deadlines in my work that are difficult to meet.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I work more than 8 hours a day	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have to work very fast	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My daily activities affected because of workload (i.e., exercise, eating time and sleeping time)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I like to wake up at night because of problem at work	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have no energy left at the end of the working	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Section D : Work- family conflict

Please read the following statements, and please tick in the appropriate box to indicate your level of agreement for each statement below. The statements are anchored on the following 5-point Likert Scale.

- 1 - Strongly Disagree
- 2 - Disagree
- 3 - Neutral
- 4 - Agree
- 5 - Strongly Agree



To what extent do you agree with the following statement? *

	1	2	3	4	5
My work prevents me spending sufficient quality time with my family.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
There is no time left at the end of the day to do the things I'd like at home	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am often distracted by thoughts about work while spending time with my family.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My family misses out because of my work commitments	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My work performance suffers because of my personal and family commitments.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



Section E : Work- Life Balance

Please read the following statements, and please tick in the appropriate box to indicate your level of agreement for each statement below. The statements are anchored on the following 5-point Likert Scale.

- 1 - Strongly Disagree
- 2 - Disagree
- 3 - Neutral
- 4 - Agree
- 5 - Strongly Agree

To what extent do you agree with the following statement? *

	1	2	3	4	5
My personal life does not suffer because of work	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My job does not make my personal life difficult.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am able to meet my personal needs despite work.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am able to maintain my personal life alongside work.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am able to participate in personal activities despite work.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am able to balance work and non-work	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



APPENDIX B : SPSS OUTPUT

1.4 DESCRIPTIVE ANALYSIS

	N Statistic	Minimum Statistic	Maximum Statistic	Mean Statistic	Std. Deviation Statistic	Skewness Statistic	Std. Error
DV_WLB	334	1.00	5.00	3.2465	1.09155	-.149	.133
IV1_JS	334	1.00	5.00	3.1732	.98971	-.141	.133
IV2_WL	334	1.17	5.00	3.3184	.94790	-.035	.133
IV3_WFC	334	1.00	5.00	3.1916	1.10143	-.106	.133
Valid N (listwise)	334						

1.5 RELIABILITY ANALYSIS

Scale: IV 1 : Job Stress

Case Processing Summary

		N	%
Cases	Valid	334	100.0
	Excluded ^a	0	.0
	Total	334	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.860	6

Scale: IV 2 : Workload

Case Processing Summary

		N	%
Cases	Valid	334	100.0
	Excluded ^a	0	.0
	Total	334	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.853	6

Scale: IV 3 : Work - family Conflict

Case Processing Summary

		N	%
Cases	Valid	334	100.0
	Excluded ^a	0	.0
	Total	334	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.916	5

Scale: DV : Work - life Balance

Case Processing Summary

		N	%
Cases	Valid	334	100.0
	Excluded ^a	0	.0
	Total	334	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.935	6

1.6 PEARSON COOREALTION ANALYSIS

Correlations

		DV_WLB	IV1_JS	IV2_WL	IV3_WFC
DV_WLB	Pearson Correlation	1	-.717**	-.776**	-.831**
	Sig. (2-tailed)		<.001	<.001	<.001
	N	334	334	334	334
IV1_JS	Pearson Correlation	-.717**	1	.800**	.740**
	Sig. (2-tailed)	<.001		<.001	<.001
	N	334	334	334	334
IV2_WL	Pearson Correlation	-.776**	.800**	1	.787**
	Sig. (2-tailed)	<.001	<.001		<.001
	N	334	334	334	334
IV3_WFC	Pearson Correlation	-.831**	.740**	.787**	1
	Sig. (2-tailed)	<.001	<.001	<.001	
	N	334	334	334	334

** . Correlation is significant at the 0.01 level (2-tailed).

1.7 MULTIPLE REGRESSION ANALYSIS

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.856 ^a	.733	.730	.56688

a. Predictors: (Constant), IV3_WFC, IV1_JS, IV2_WL

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	5.847	.115		50.835	<.001
	IV1_JS	-.109	.055	-.099	-1.992	.047
	IV2_WL	-.303	.062	-.263	-4.848	<.001
	IV3_WFC	-.546	.048	-.551	-11.395	<.001

a. Dependent Variable: DV_WLB