

**Psychosocial Work Environment, Organisational Justice and
Work Family Conflict as Predictors of Malaysian
Worker Wellbeing**

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Abstract

This thesis investigates the predictors of Malaysian employee wellbeing, specifically, whether the psychosocial work environment (job demands, job control, social support), organisational justice (procedural, interactional, distributive) and work family conflict (work to family and family to work conflict) can reliably predict employee wellbeing (job satisfaction, job affective wellbeing, life satisfaction, positive affect, negative affect and psychological wellbeing). Drawing upon the Job Demand-Control (JDC) and Job Demand-Control-Support (JDCS) models, it also examines the moderating effects of job control and social support on the relationship between job demands, organisational justice and work family conflict, and wellbeing.

A questionnaire survey approach was used as a method of quantitative data collection involving 1125 assembly workers, supervisors and managers from the manufacturing sector in Malaysia. This study established models of how the psychosocial work environment, organisational justice and work family conflict effectively predict key wellness indicators, particularly job satisfaction. In addition, predictors related to work context (job demands, social support and organisational justice) were found to be significantly related to work related wellbeing: job satisfaction and job affective wellbeing. The results revealed that WFC was more strongly related to work related wellbeing, whereas FWC was related to non-work related wellbeing.

The moderating effects proposed by the JDC and JDCS were not substantially supported in this study. Only the interactive effects of: job demands and social support, and interactional justice and job control, in predicting job satisfaction, and the interactive effects of: distributive justice and job control, and WFC and social support, in predicting positive affect, were significant. No evidence of three-way joint interactive effects of predictors was supported in the present findings. This study contributes to the corpus of literature on employee wellbeing as well as the practical implication to the organisations. With future research directions highlighted in this study, a more comprehensive model of employee wellbeing prediction can be achieved, particularly in the context of Malaysia.

Keywords: Psychosocial work environment, justice, work family conflict, wellbeing

Student Declaration

“I, R Zirwatul Aida R Ibrahim, declare that the PhD thesis entitled ‘Psychosocial Work Environment, Organisational Justice and Work Family Conflict as Predictors of Malaysian Worker Wellbeing’ is no more than 100,000 words in length, including quotes and exclusive tables, figures, appendices, bibliography, references and footnotes. This thesis contains no material that has been submitted previously, in whole or in part, for the award of any academic degree or diploma. Except where otherwise indicated, this thesis is my own work”.

Signature:

Date: August 2012

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CHAPTER 1: INTRODUCTION

1.1 Background of the Study

This research investigates the reliable predictor variables of employee wellbeing in Malaysia. Specifically, the current study examines whether the psychosocial work environment (job demands, job control and social support), organisational justice (procedural, interactional and distributive justice), and work family conflict (work to family conflict (WFC) and family to work conflict (FWC)) can reliably predict levels of employee wellbeing. The wellbeing of employees does not necessarily relate solely to tangible factors such as salaries, increment or promotions; rather, more broadly, the worker wellbeing is accompanied by the positive feelings and perceptions about workplace that result in a happy and productive workforce (Harter, Schmidt & Keyes, 2002).

In the workplace, employees are the most valuable asset to the organisation that employs them. Employees' dissatisfaction with their jobs or lives will reduce their work performance, job commitment and dedication to their job and the family. Numerous studies have linked worker wellbeing with: decreased workplace turnover (Wright & Bonett, 1997); improved physical health (Richman et al., 2005) and high employee performance (Wright & Cropanzano, 2000). As low levels of employee wellbeing can also adversely affect both workers and their organisations, a clear identification of worker wellbeing predictors is required in order to formulate an effective theoretical framework for understanding employee wellbeing in Malaysia.

With the emergence of positive psychology (Seligman & Csikszentmihalyi, 2000), researchers have begun to pay more attention to work-related wellbeing (Huhtala & Parzefall, 2007). Danna and Griffin (1999) argue that wellbeing should be viewed as an individuals' satisfaction with various aspects of work such as satisfaction with job, co-workers and other job-related aspects. An individual's wellbeing can also be determined by satisfaction with life domains such as family and spirituality and health such as psychological and physical health.

Previous studies have shown that various factors can affect wellbeing including: work family conflict (Brough & O'Driscoll, 2005), self efficacy (Siu, Lu & Spector, 2007), sense of coherence and self esteem (Kalimo, Pahkin, & Mutanen, 2002), psychosocial work environment (Gilbreath & Benson, 2004; van der Doef & Maes, 1999), organisational justice (Lindfors et al., 2007) and other organisational issues relate to employee wellbeing. However, a comprehensive model that predicts the employee wellbeing has not been thoroughly investigated (Loretto et al., 2005).

Guided by the Job Demand-Control (JDC) (Karasek, 1979) and Job Demand-Control-Support (JDCS) (Johnson & Hall, 1988; Karasek & Theorell, 1990) models, the present study investigates several significant predictors of employee wellbeing including psychosocial work environment, organisational justice and work family conflict among Malaysian workers. The psychosocial work environment (job demands, job control and social support), organisational justice (procedural, interactional and distributive) and work family conflict (WFC and FWC) are integrated into the current research model of wellbeing prediction, an approach which has rarely been applied in previous studies (Brough & Kelling, 2002; Rodwell, Noblet, Demir & Steane, 2009). In addition, the present study investigates the moderating role of job resources (job control and social support) in buffering the negative impact of job demands, perceived low justice and work family conflict on employee wellbeing.

Therefore, this study offers better insights into an understanding of employee wellbeing, especially in the collectivistic culture of Malaysia – a multi-ethnic society consisting with different socio-cultural groups. In addition, the present study seeks to reveal the possibility of similarities which allow generalization from Western findings despite the cultural differences that set Malaysia apart from other Western cultures in defining worker wellbeing. Therefore, the current study investigates the effectiveness of dominant worker wellbeing prediction models such as the JDC and JDCS models.

1.2 Research Problem

Competition in the increasingly industrialised manufacturing industry in Malaysia has highlighted the need for managements to foster employee wellbeing as an essential element of important worker retention and recruitment policy. The importance of worker wellbeing has been recognized also by Malaysian policy makers. For example the former Prime Minister, Tun Dr. Mahathir Mohamad outlined strategies for successful industrialization in his *Malaysian Vision 2020* as follows:

Malaysia should not be developed only in the economic sense. It must be a nation that is fully developed along all the dimensions: economically, politically, spiritually, psychologically and culturally. (Mohamad, 1993, p. 404)

Broadly in line with this multi-faceted and balanced approach to industrialization, which emphasises worker wellbeing, the current study investigates the significant predictors of the levels of employee wellbeing from the perspective of the psychosocial work environment (job demands, job control and social support), organisational justice (procedural, interactional and distributive justice) and work family conflict (WFC and FWC).

Employees are the most essential and valuable resources of companies in the 21st century (Frost & Sullivan, 2010). They are the key asset of organisations, as their presence contributes to the smoothness of the business plan's implementation and increased productivity. Satisfied employees are described as more cooperative, more helpful to their colleagues and more efficient in time management (Spector, 1997). In addition, employee wellbeing is a significant factor that influences the decisions of employees to stay or to leave their organisations, and contributes to higher job performance (Wright, 2006). As a result, employers should be concerned about the wellbeing of their employees as it "could be the underlying factor to success" in the organisation (Kansas State University, 2009).

Conversely, organisations will face high costs if they do not address the low wellbeing of the employees in their workplace. For example, US organisations bear the cost of productivity losses of \$7,500 USD per week, or \$390,000 USD per year per 100 employees due to psychological distress (Kansas State University, 2009;

Wright & Cropanzano 2004). In addition, the cost of absenteeism and productivity loss in the United States in 2004 amounted to \$225.8 billion USD (Frost & Sullivan, 2010). For this reason, enhanced employee wellbeing is crucial to minimising such negative economic impacts. Wright and Cropanzano (2004) suggest that a way to improve the functioning of an organisation is to recruit employees with high levels of wellbeing. Although prevention could be better than treatment, the author of the current thesis does not agree with this simplistic approach, since the wellbeing of existing employees need also to be maintained and enhanced through well-planned strategies and interventions. Therefore, the current research investigates the contributing factors that help predict wellbeing, specifically the wellbeing of employees in Malaysia. Furthermore, it is expected that the current study will provide information that enhances workers wellness and identify possible negative consequences for both employees and organisations if worker wellbeing is less than satisfactory.

According to the *Labour Force Survey*, Department of Statistics Malaysia (2008), the manufacturing industry workforce contributed 18 to 22 percent of Malaysia's total workforce from 2002 to 2007. Therefore, there is a crucial need for understanding the employee wellbeing predictors in the manufacturing sector, as it is the largest industry sector in Malaysia. Furthermore, although a significant number of studies of wellbeing have been undertaken in other countries, such as the United Kingdom, the United States and Australia, research evidence from developing countries predicting worker wellbeing is scarce (Burke, 2010; Suhail & Chaudhry, 2004).

In recent years, the number of job seekers in Malaysia has increased significantly, with the number of new job registrants increasing from 9,896 to 15,936 (61 percent) and the number of active job registrants increasing from 85,030 to 137,716 (61.9 percent) in 2007 and 2008, respectively (Ministry of Human Resources Malaysia, 2008). Yin-Fah, Foon, Chee-Leong and Osman (2010) state that the high number of active job registrants revealed high levels of workplace dissatisfaction that may indicate that many Malaysian workers wish for more satisfying jobs. If their view is correct, these job seekers' negative ideas about their work commitments may be negatively affecting their work performance. A

qualitative study involving absenteeism among Malaysian employees in a densely populated region of Kuala Lumpur, Klang Valley, revealed that lack of wellbeing at work was one of the contributory factors to absenteeism (Saroja, Ramphal, Kasmini, Ainsah & Bakar, 1999). Other studies involving Malaysian employees reported that dissatisfaction with work and organisations was related to absenteeism (Khalid, 2006) and an intention to look for a new job (Idrus, Salahudin, Baharin & Abdullah, 2009), resulting in increased costs of work induction and staff training due to turnover. Therefore, research on the workplace factors that allow the prediction of worker wellbeing is necessary to mitigate worker dissatisfaction that results in a loss of productivity.

The Chairman of the National Institute of Occupational Safety and Health Malaysia warned:

Employers must be aware that the neglect of mental health and psychosocial factors at the workplace are not only detrimental to the individual worker but also directly affect productivity, efficiency and output of any organisation (Bernama, 2008)

As employees spend much of their lives in the workplace, the psychosocial work environment (job demands, job control, and social support) is regarded as the major contributing factor that affects wellbeing. Several studies have established that high levels of job demands, low job control and low social support are associated with poor psychological wellbeing, anxiety, stress and depression (Edimansyah et al., 2008; Escriba-Aguir & Tenias-Burillo, 2004). Malaysian research by Manshor, Fontaine and Choy (2003) also confirmed that high job demands is a job stressor, and that both job control and psychological demands are associated with employees' dissatisfaction (Huda et al., 2004). O'Donnell (2000) observed that most research has focused on the physical hazards of work and the work environment, with less attention being given to the psychosocial aspects of work environments and their impact on the wellbeing of employees. A similar phenomenon has been reported by Sadhra, Beach, Aw and Sheikh-Ahmed (2001) in their Malaysian study. They found that Malaysian employers did not recognise workplace psychosocial problems as important factors for management. Thus, this study focuses on the psychosocial aspects of work environments as predictors of employee wellbeing. In other words, the levels of job demands, the extent the employees believe that they can exert

control over the job and the support of supervisors and co-workers are significantly related to employees' strain and wellbeing (Johnson & Hall, 1988; Karasek & Theorell, 1990).

In addition to psychosocial work factors, looking at the pattern of employment in Malaysia, the issue of work family conflict inevitably contributes to employee wellbeing. Concerns about the detrimental effect of work family conflict on wellbeing have been raised by several Malaysian researchers (e.g., Hassan, Dollard & Winefield, 2010; Noor, 2004; Samad 2006). The need to establish a strong family system has also been identified by Malaysian policy makers. For example, the former Prime Minister, Tun Dr. Mahathir Mohamad referred to this in his *Vision 2020*:

Malaysians need to establish a fully caring society and a caring culture, a social system in which society will come before self, in which the welfare of the people will revolve not around the state or the individual but around a strong and resilient family system (Mohamad, 1993, p. 405).

Sparks, Faragher and Cooper (2001) argue that the 21st century workforce is experiencing changes that strongly impact on employee wellbeing. Among the identified changes are the increase in the numbers of women, dual income families and older workers in the workforce. Similarly, Judy and Amico (1997) indicated that almost half of the American workforce was female. They also indicated that men were no longer sole wage earners in the family. Therefore, flexible work hours, family-friendly work practices such as family-related leave and telecommuting, especially for employees with young children, are increasingly important. Malaysian organisations reveal the same changing composition of the workplace in terms of increased labour force participation (see Table 1.1).

Table 1. 1. The Distribution of Labour Force by Sex, Malaysia 1997-2007

Year	Total Number of Labour Force (in millions)	Male	Female
1997	8,784.0	5,787.3 (65.88%)	2,996.7 (34.12%)
1998	8,883.6	5,904.2 (66.46%)	2,979.4 (33.54%)
1999	9,151.5	6,063.5 (66.26%)	3,088.0 (33.74%)
2000	9,556.1	6,156.2 (64.42%)	3,399.9 (35.58%)
2001	9,699.4	6,268.3 (64.63%)	3,431.1 (35.37%)
2002	9,886.2	6,352.3 (64.25%)	3,533.9 (35.75%)
2003	10,239.6	6,559.4 (64.06%)	3,680.1 (35.94%)
2004	10,346.2	6,615.1 (63.94%)	3,731.1 (36.06%)
2005	10,413.4	6,700.9 (64.35%)	3,712.5 (35.65%)
2006	10,628.9	6,843.5 (64.39%)	3,785.4 (35.61%)
2007	10,889.5	6,963.5 (63.95%)	3,926.0 (36.05%)

Source: Labour Force Survey, Department of Statistics, Malaysia (2008)

As the Malaysian workforce consists of 62.4 percent married employees with 44.0 percent dual income families (Department of Statistics Malaysia, 2005), it inevitably raises the issue of work family conflict resulting from the competing demands of house chores and employment. For example, a survey conducted among 10,000 Malaysians (28 percent Chinese Malaysians, 22 percent Indian Malaysians and 18 percent Malay respondents) revealed feelings of strain (Bernama News, 2007). One in five Malaysians admitted that they were very stressed and faced difficulty in ensuring that they could manage their work and family life simultaneously. The survey also indicated that two-thirds of respondents prioritized their families while the others were struggling to achieve a work-family balance. While working as employees, they are still obliged to fulfill other responsibilities as husbands, wives, fathers, mothers and sons and daughters. This situation, and in particular the dual role faced by women, has led the researcher to investigate the Malaysian workforce. However, literature on work family conflict in Malaysia has paid little attention to male employees (Ahmad, 1996; Noor, 1999; 2002; 2006; Samad, 2006). Since this work family conflict has become an issue concerning both men and women in recent years (Hassan et al., 2010; Noor, 2002), the current study includes both genders in its investigation of work family conflict.

Malaysia consists of people from several different ethnic and cultural backgrounds, thus, another crucial issue for workers and their organisational

wellbeing is the issue of workplace justice. Employees from different cultural backgrounds may have different understanding of the organisational practices and of what constitutes justice (Kogi & Kawakami, 1997). Barak and Levin (2002) noted an important relationship between commitment to an organisation and perceived fairness at work as a crucial element in determining worker motivation. The importance of organisational justice in employee wellbeing has been highlighted in Western studies (e.g, Findler, Wind & Barak, 2007; McFarlin & Sweeney; 1992; Zohar, 1995).

Further, the significance of organisational justice to employee wellbeing has been investigated by, not only Western, but Malaysian scholars, revealing the negative outcomes of poorly administered justice in the workplace (Fatt, Khin & Heng, 2010; Hemdi & Nasurdin, 2008). In one study involving Malaysian workers, Yin-Fah et al., (2010) found that the amount of resources that management spent on implementation of organisational and procedural justice in the workplace was minimal compared to the loss that was incurred in employee turnover.

To date, investigating organisational justice in Malaysia has focused mainly on either procedural or distributive justice or a combination of both (e.g. Hemdi & Nasurdin, 2008; Ismail, Leng, Marzuki & Cheekiong, 2008; Ismail, Rahman & Ismail, 2007). However, it is important to investigate not only how fairness of work procedures and fairness of work outcomes such as pay and promotion contribute to the wellbeing of employees, but also fairness of social interactions (interactional justice) as a complement component of properly administered workplace justice. Hence, the current investigation attempts to address this gap in our knowledge of investigation of justice components as predictors of employee wellbeing.

Several researchers have identified the importance of psychosocial factors impacting an employee wellbeing in the workplace, including factors such as supervisor behaviour (Gilbreath & Benson, 2004), job demands, job control and social support (Escriba-Aguir & Tenias-Burillo, 2004), as well as work family conflict (Brough & O'Driscoll, 2005) and organisational justice (Lindfors et al., 2007). However, prior research has investigated these predictors separately. Since the evidence of wellbeing prediction currently available predominantly comes from

Western research, it has been gathered and interpreted from the cultural point of view of an individualistic society. In contrast, the present study attempts to focus on a holistic understanding of employee wellbeing by investigating three main predictors (psychosocial work environments, organisational justice and work family conflict) in the context of the collectivist culture of Malaysia. In this study, job control and social support were conceptualised together as the moderators. In other words, the current study investigates how these two significant job resources would ameliorate the negative impact of job demands as moderator variables. This should bring valuable insights as the investigation of moderating effect of both organisationally-based resources (job control and social support) in organisational justice as well as in work family conflict studies is scarce (see Mauno, Kinnunen & Ruokolainen, 2006).

1.3 Research Questions

This study is designed to investigate the psychosocial work environment, organisational justice and work family conflict as the reliable predictors of employee wellbeing in Malaysia. In other words, the study investigates the extent to which these variables predict the levels of employee wellbeing. Seven research questions are addressed as follows:

1. Do psychosocial work environments (job demands, job control and social support), organisational justice (procedural, interactional, and distributive justice) and work family conflict (WFC and FWC) together predict employee wellbeing?
2. Do psychosocial work environments (job demands, job control, and social support) predict employee wellbeing as *independent predictors*?
3. Does organisational justice (procedural, interactional, and distributive justice) predict employee wellbeing as *independent predictors*?
4. Does work family conflict (WFC and FWC) predict employee wellbeing as *independent predictors*?
5. Does job control moderate the relationship between: job demands and employee wellbeing; organisational justice (procedural, interactional and distributive justice) and employee wellbeing; and work family conflict (WFC and FWC) and employee wellbeing?
6. Does social support moderate the relationship between: job demands and employee wellbeing; organisational justice (procedural, interactional and

distributive justice) and employee wellbeing; and work family conflict (WFC and FWC) and employee wellbeing?

7. Does social support moderate the relationship between: high job demands and low job control, and employee wellbeing; perceived low organisational justice and low job control, and employee wellbeing; and high work family conflict and low job control, and employee wellbeing? (i.e., three-way interactive effects).

1.4 Significance of the Study

The current study contributes to the advancement of worker wellbeing research in several significant ways. Firstly, this study contributes to the body of knowledge as it is conducted among manufacturing employees in the collectivist culture of Malaysia. The issue of wellbeing in the workplace has become increasingly important and deserves a prominent niche in organisational study (Danna & Griffin, 1999). Although cumulative evidence on predicting employee wellbeing has been found from within individualistic cultural settings (e.g. Gallagher & Vella-Brodrick, 2007; Gilbreath & Benson, 2004; Grant-Vallone & Donaldson, 2001) there have been limited studies involving employee wellbeing from within collectivist cultural settings, and in particular from within Malaysia. For example, out of six theses on wellbeing published in the Malaysia University Libraries and National Libraries Network (2008), only two studies have been conducted involving employees; these were with nurses and in the service sector.

Secondly, studies on wellbeing in Malaysia have mainly focused on work family conflict as a predictor (e.g. Ahmad, 1996; Noor, 2004; 2006; Samad, 2006). Participants involved in the previous studies typically involved women in professional and secretarial-clerical roles. The current study extends the generalizability of findings by incorporating a diverse range of employees from different groups in different occupation levels (assembly workers, supervisors and managers).

Thirdly, this study is significant as it provides a more inclusive research framework in predicting employee wellbeing. This study tests the Job Demand-Control (JDC) and Job Demand-Control-Support (JDSC) models, not only with the

key dimensions of the JDCS variables (job demands, job control and social support), but by applying the models to an investigation of work family conflict and organisational justice. More importantly, although there is cumulative evidence (e.g. Pelfrene et al., 2001; Macklin, Smith & Dollard, 2006; Rodriguez, Bravo, Peiro & Schaufeli, 2001) that has tested the JDC and JDCS models in the Western countries, little research has been available from Eastern cultural settings, particularly Malaysia. This study extends previous studies (Lingard & Francis, 2006; Mauno et al., 2006; Rousseau, Salek, Aube & Morin, 2009) by investigating the main and moderating effects of job control and social support on a study of the psychosocial work environment, organisational justice and work family conflict simultaneously, in a single study of wellbeing prediction in Malaysia.

Finally, on the practical side, this study provides important findings which may help an organisation to understand employee behaviour more deeply. Since employee wellbeing can affect an organisation's overall importance, the current study, by assisting organisations to identify factors conducive to worker wellbeing, will clearly be of benefit. Furthermore, the study may also prove useful by highlighting the consequences of unfavourable factors in both work and non-work domains which affect employees and their organisations. Identification of potential threats to the employee wellbeing will enable individuals and their organisations to adopt precautionary measures and make use of resources to prevent negative outcomes. In order to do this effectively, this study investigates the employee perception of factors that contribute to their wellbeing, as Sparks et al. (2001) found that it is important to distinguish employees' perceptions regarding positive and negative stressors in the workplace for the purposes of both practical intervention and further research.

In addition, in terms of practical contribution, this study can serve as a valuable guide for employers, as a good management team needs to understand their employees' perspective, and needs to listen and identify their needs (Huhtala & Parzefall, 2007). With ample knowledge about significant predictors of employee wellbeing, both the individual and the organisation may be prepared to react positively. The study also has the potential to be applied to improve workers' wellness as the findings of the research may be of help to counselors and

organisational psychologists, specifically in Malaysia, enabling them to develop appropriate interventions. The role of organisational psychologists is very significant, as they can promote employee wellbeing in line with Malaysia's vision to become a developed nation according to its own national model (Rahman, 2005).

In summary, this research will contribute to the literature in the related field not only through bridging a gap by involving participants from a collectivistic culture and an Eastern setting, but by extending the original JDC and JDCS models by incorporating organisational justice and work family conflict into the research model. In terms of a practical contribution, this study provides significant findings that could be of particular interest to employees as well as their organisations. The most influential predictors of employee wellbeing will be highlighted, and employers and more particularly, human resource officers, can focus on these to promote healthier work environments and support the wellness of employees and their organisations.

1.5 Malaysia and Manufacturing Sector

This section includes a brief introduction of Malaysia and its manufacturing sector. Contextual and demographic information about the contemporary Malaysia and the role of the manufacturing sector in Malaysia will be presented. The basic understanding of the manufacturing industry in Malaysia is important as the contribution of this sector to Malaysia economic growth is crucial – the sector accounts for 48.1 percent of total gross domestic product (GDP) (Economy of Malaysia, 2011).

Data for the current study were collected involving Malaysian manufacturing workers. Malaysia is a developing country, but has been categorized as one of the most developed ones (Price Waterhouse Coopers, 2006). It is separated by the South China Sea into two main regions: Peninsular Malaysia and Malaysian Borneo (also known as West and East Malaysia) as shown in Figure 1.1.

The Malaysian population is comprised of a number of ethnic groups with Malays (63.1 percent) making up the majority of the population in Peninsula Malaysia. According to the Department of Statistics Malaysia (2011), the Malaysian

population consists of a majority of 61.3 percent Muslims with the remainder consisting of Buddhists (19.8 percent), Christians (9.2 percent), Hindus (6.3 percent), as well as Confucians, Taoists and followers of other traditional Chinese religions (1.3 percent), followers of other religions (0.4 percent), believers in unknown religions (1.0 percent) and 0.7 percent without religion. In South East Asia, Malaysia represents a modern, moderate Muslim nation (Price Waterhouse Coopers, 2006) with a multi-ethnic, multicultural and multilingual society. The official language of Malaysia is the Malay language, mainly spoken among Malays. However, most Malaysians are able to speak two or three languages and/or dialects fluently. Hence, language is a mirror of the multi-ethnic complexity of Malaysia.



Figure 1. 1. Map of Malaysia
(Source: “Maps of Malaysia”, 2011)

Data for the study were collected from 1,125 employees in large manufacturing companies, mainly focused on Peninsular Malaysia, including the West Coast (Selangor, Johor, Malacca, Negeri Sembilan and Kedah) and the East Coast (Terengganu and Pahang). The manufacturing companies that were the focus

for this study are affiliated with the Federation of Malaysian Manufacturers (FMM). The FMM is a private Malaysian economic organisation, officially recognized as the voice of the industry. According to the FMM (2008), there are three categories of enterprises within its membership, the categorisation being based on the number of employees: small enterprises (0 to 50 employees); medium enterprises (51 to 150 employees); and large enterprises (more than 150 employees). Most of the manufacturing companies were located on the West Coast of Peninsula Malaysia as shown in Figure 1.2.

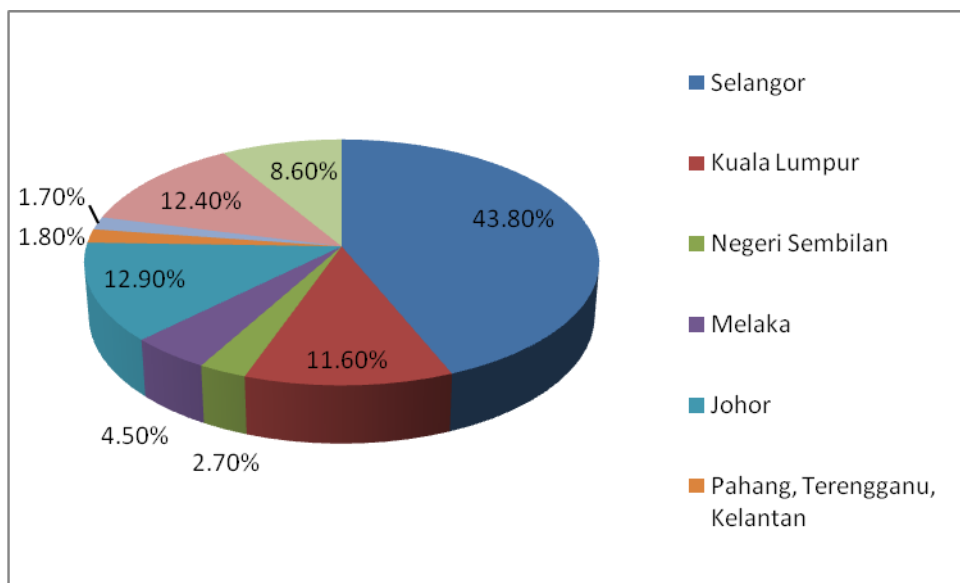


Figure 1. 2. Profile of FMM membership by state
Source: FMM Directory of Malaysian Industries (2008)

1.6 Structure of the Thesis

This section presents the structure of the thesis. The thesis is organised into six chapters, beginning with the introductory chapter and ending with a chapter outlining a discussion of results and conclusions. This section provides an overview of each of the chapters that helps the reader to understand the chapters' contents.

Chapter 1: Introduction

This chapter includes the introduction of the research background, research problem, research questions and research objectives. The chapter also discusses the significance of the research and presents a brief research methodology. Definitions of

important terms are highlighted followed by an outline of the structure of the overall thesis.

Chapter 2: Literature review

This chapter presents definitions of wellbeing indicators and discusses the theoretical background that guided the research including the JDC model (Karasek, 1979), the JDCS model (Johnson & Hall, 1988; Karasek & Theorell, 1990), the Job Demand-Resources model (Bakker & Demerouti, 2007; Demerouti et al., 2001) and the Effort-Reward Imbalance model (Siegrist 1996; Siegrist et al., 2004). The literature review related to the context of the study focuses on the psychosocial work environment (psychological job demands, job control and social support), organisational justice (procedural, interactional and distributive justice) and work family conflict (WFC and FWC), and the relationship of these variables to employee wellbeing. In addition, the moderating effect of job control and social support in the relationship of these variables and wellbeing is also discussed. Towards the end of the chapter, gaps in the corpus of literature are addressed.

Chapter 3: Methodology

This chapter discusses the methodology adopted to test the prediction model of wellbeing. A self report survey was designed from the literature, incorporating suggestions from both academics and the staff of the organisations involved in the study. This survey was then pre-tested and piloted before being distributed to the final participants (Malaysian employees in the manufacturing sector). This chapter also discusses the sample size and selection and explains in detail how the data has been analysed. Ethical considerations are also discussed.

Chapter 4: Preliminary analysis and goodness of measures

This chapter discusses the preliminary analysis including data screening and cleaning (detecting the accuracy of data entry and missing data, outliers and normality of data) and descriptive statistics. Further, this chapter covers testing on the issues related to response and response bias, goodness of measures (factor analysis and reliability analysis) as well as common method bias.

Chapter 5: Main analysis and hypotheses testing

This chapter presents the results of the main analysis and hypotheses testing. After establishing that the data did not violate regression normality, hierarchical multiple regression analysis is conducted to test the main effect of psychosocial work environments, organisational justice and work family conflict on predicting employee wellbeing. This chapter continues to analyse additive effects, the two-way interactive effect of predictors and job resources (job control and social support) as well as the three-way joint interactive effects of predictors and job control and social support in predicting employee wellbeing. This chapter ends with an additional analysis including t-test, MANOVA and ANOVA.

Chapter 6: Discussion of results and conclusions

The final chapter summarizes the major findings of the study related to the research questions addressed in the study. The discussion begins with the main effects followed by additive and interactive effects hypotheses. It then discusses the implications of the study in terms of theoretical and practical contexts. Finally, it concludes the thesis by highlighting its limitations and also recommending possible future research in this field.

1.7 Chapter Summary

This chapter has introduced the background of the research and discussed the research problem. Next, it provided the research questions, research objectives and presented the significance of the study. In the introduction to the methodology section, this chapter also included a brief background of Malaysia and the Federation of Malaysian Manufacturers, which is where the organisations in this study are registered. Further, the thesis structure is outlined in terms of the six chapters (1–Introduction, 2–Literature review, 3–Research methodology, 4–Preliminary analysis and goodness of measures, 5–Main analysis and hypotheses testing, and 6–Discussion and conclusions). The following chapter provides a review of the literature related to the context of the study.

CHAPTER 2: LITERATURE REVIEW

2.1 Introduction

In order to more fully understand predictions of employee wellbeing, this chapter reviews the relevant literature from theoretical and empirical studies on the predictors of wellbeing, namely the psychosocial work environment including job control, psychological job demands and social support, organisational justice, and work family conflict. The main aims of this chapter are to place the current study in the context of the extant literature, and to present the proposition of this study, that is the psychosocial work environment, organisational justice and work family conflict together will be found to predict the level of employee wellbeing.

Firstly, the definitions and dimensions of wellbeing in the literature are examined. To augment the theoretical background of the current study, this chapter presents an overview of three influential models: the Job-Demand-Control (JDC) model (Karasek, 1979); the Job Demand-Control-Support (JDCS) model (Johnson & Hall, 1988; Karasek & Theorell, 1990); the Job Demand-Resources model (Bakker & Demerouti, 2007; Demerouti et al., 2001); and the Effort-Reward Imbalance model (Siegrist 1996; Siegrist et al., 2004). An overview of the psychosocial work environment literature begins with the definitions of its constructs, namely job control, psychological job demands and social support, Karasek's (1979) Job-Demand-Control model and psychosocial work environment and wellbeing relationship. Secondly, the organisational justice literature is discussed with a particular focus on the definitions of organisational justice, the three types of organisational justice identified by Moorman (1991): distributive, procedural and interactional justice, the relationship between wellbeing and justice, and the impact of injustice in the workplace. This section of the literature review also focuses on the moderator variables in the organisational justice literature.

This chapter starts with a discussion of the definitions of work family conflict in the literature, distinguishing in particular between work to family conflict (WFC) and family to work conflict (FWC), work family conflict and its impact on wellbeing. The outcomes of work family conflict on individuals and organisations

and the possible moderator variables in work family literature are then discussed. Finally, this chapter concludes the review by identifying the gaps which the current study attempts to address. Thus, this chapter draws together the pertinent literature on predictor variables (psychosocial work environment, organisational justice and work family conflict) and their relationship with employee wellbeing in order to form the conceptual framework that is to be tested.

2.2 Wellbeing

As changes in employee wellbeing can adversely affect both workers and their organisations, a concern for employee wellbeing has been the focus of previous studies, the majority of which involved Western countries (e.g. Gilbreath & Benson, 2004; Wright, 2006). However, other studies have revealed differences in employee wellbeing between individualist and collectivist nations – the individualist and wealthy countries reporting higher levels of wellbeing (Diener & Suh, 1999; Liu & Spector, 2005). Thus, since the evidence shows the sense of wellbeing is in part subjective and influenced by country and culture, it is necessary to establish a basis for investigating this issue in the collective society of Malaysia. The findings of the current study, therefore, it is hoped will further our understanding of geographical and cultural differences (Schimmack, Radhakrishnan, Oishi, Dzokoto & Ahadi, 2002) on worker wellbeing.

The current study adopted the model of employee mental health developed by Page and Vella-Brodrick (2009) as the basic foundation for understanding employee wellbeing (Figure 2.1.). This model operationalises employee wellbeing as consisting of subjective wellbeing (SWB) (including life satisfaction, dispositional affect including positive and negative affects), psychological wellbeing (PWB), affective wellbeing and job satisfaction. Page and Vella-Brodrick's model provides a comprehensive understanding of all the components of employee wellbeing, encompassing aspects beyond the previously accepted single construct of job satisfaction (Illies, Schwind & Heller, 2007). Their model incorporates the affective and cognitive judgments of individuals which indicate overall employee wellbeing appropriately to the aims of current study investigation.

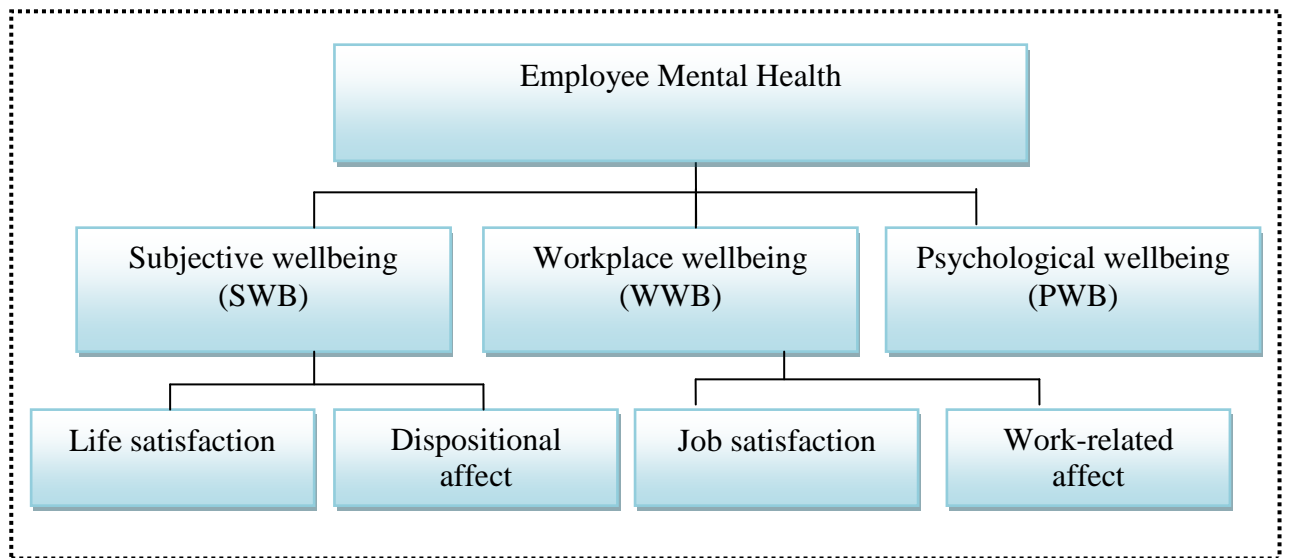


Figure 2.1 Model of employee mental health (Page & Vella-Brodrick, 2009)

Parasuraman, Greenhaus and Granrose (1992) argue that wellbeing indicates satisfaction or strain in major domains of individuals' lives (p. 342). Studies of employee wellbeing generally assume that happiness equates to job satisfaction, with research literature showing that positive affects indicate the absence of negative affects including the lack of emotional exhaustion and positive psychological wellbeing (Cropanzano & Wright, 2001). Therefore, to understand employee wellbeing, it is necessary to analyse a broad concept of wellbeing (van Horn, Taris, Schaufeli & Schreurs, 2004). For example, Rijswijk, Bekker, Rutte and Croon (2004) found that affective wellbeing is the central focus of occupational wellbeing, even above and beyond professional, social, cognitive and psychosomatic wellbeing. In understanding occupational wellbeing, van Horn et al. (2004) argued that, in the past, examining the affective state of employees was seen as the only valid form of measurement of job satisfaction. However, although this measurement remains central to understanding employee wellbeing, more recent studies have expanded the understanding of positive and negative affective states, and have included life satisfaction as well as an indicator of employee wellbeing.

In defining job satisfaction, Herzberg, Mausner and Snyderman (1959) focused on motivation (intrinsic) and hygiene (extrinsic) factors, suggesting that intrinsic factors such as growth, responsibility, recognition and achievement contribute to employees' job satisfaction; whereas, extrinsic factors such as company policy, salary, and relationships with employer and peers lead to job dissatisfaction.

Following this, a comprehensive definition of job satisfaction was given by Locke (1969) which included individuals' cognitive, affective, evaluative reactions towards their jobs. Locke saw job satisfaction as the pleasurable emotional state resulting from achieving one's job values; whereas he described job dissatisfaction as a pleasureless emotional state resulting from frustration in achieving these values.

According to Parasuraman and Simmers (2001), job satisfaction refers to individuals' affective reactions towards their jobs. In other words, it represents employees' positive feelings towards their job. More recently, job satisfaction has been viewed as comprising individuals' general attitudes towards their jobs and the degree to which they like their jobs (Robbins, 2003; Spector 1997). Many studies found that job satisfaction is a significant predictor of psychological wellbeing and it is widely used to study work-related wellbeing (Brough & O'Driscoll, 2005; Illies et al., 2007; Rathi & Rastogi, 2008; van der Doef & Maes, 1999).

As the majority of employees spend between one and two-thirds of their waking time in the workplace (Murphy & Cooper, 2000), it is not surprising that job satisfaction contributes significantly to their overall quality of life and wellbeing. Rothman (2008) and Warr (2007) state that job satisfaction is one component of work-related wellbeing and individual's happiness at work. This is confirmed in Rothmann's study of 677 South African police officers, in which job satisfaction was found to be central to wellbeing, and to be based on pleasure and displeasure dimensions at work.

However, in reviewing the definitions of job satisfaction, the most comprehensive definition and the one most suited to the Malaysian context is the definition proposed by Spector (1997). Spector defines job satisfaction as:

simply how people feel about their jobs and different aspects of their jobs. It is the extent to which people like (satisfaction) or dislike (dissatisfaction) their jobs. As it is generally assessed, job satisfaction is an attitudinal variable. In the past, job satisfaction was approached by some researchers from the perspective of need fulfillment- that is, whether or not the job met the employee's physical and psychological needs for the things provided by work, such as pay. However this approach has been de-emphasized because today most researchers tend to focus attention on cognitive rather on underlying needs. (Spector, 1997, p. 2)

The research on job satisfaction to date has tended to focus on tangible job conditions such as salaries and work conditions alone, rather than incorporating job affective wellbeing which involves further exploration of emotional aspects. For example, Clegg and Wall (1981), Illies et al. (2007) and Rothman (2008) criticised the fact that studies of work-related wellbeing focus mainly on job satisfaction. Daniels, Brough, Guppy, Peters-Bean, and Weatherstone (1997) also pointed out that “the single dimension of job satisfaction may not be enough to capture the subtleties of affective reactions to work” (p. 129). Therefore, this study adopts a multi-dimensional measurement of job affective wellbeing consisting of the anxiety-comfort, depression-pleasure, bored-enthusiastic, tiredness-vigor and angry-placid axes (adapted from Daniels, 2000). With regard to Diener and Larsen’s (1993) definition of affective wellbeing, this study defines affective wellbeing as being determined by an employee’s perception regarding frequent experience of positive affect and infrequent experience of negative affect, specifically related to work.

Although affective wellbeing includes the aspect of emotions related to work, it is important to understand subjective wellbeing, as it is part of the investigation of wellbeing in the current study. Subjective wellbeing goes further in measuring life satisfaction (cognitive judgmental aspect), and global positive and negative affects (emotional or affective aspect). Both life satisfaction and positive and negative affects are types of context-free wellbeing: that is both indicators do not refer to a specific domain such as an individual’s feeling towards their job. According to Shin and Johnson (1978), life satisfaction is a global assessment regarding quality of life. It is individuals who judge how satisfied they are, and their assessment of satisfaction is, therefore, based on individual criteria.

It is important to measure the perception of individuals’ quality of life based on their global or overall life judgment, without emphasising any specific domain (Diener, 1984; Diener, Emmons, Larsen & Griffin, 1985). However, even though the assessment of overall life satisfaction has been emphasised in earlier studies (Diener, 1984; Diener et al., 1985), the measurement of general life satisfaction has received less attention (Diener et al., 1985). For this reason, a more recent study by Gallagher and Vella-Brodrick (2007) has included life satisfaction as part of subjective wellbeing, as well as measuring positive and negative affects. They argue that

previous research failed to measure all aspects of subjective wellbeing. Instead, previous studies only focused on one of the following: life satisfaction; positive affect; or negative affect. Therefore, the current research adopts the Satisfaction with Life Scale (SWLS) by Diener et al. (1985) to measure a part of subjective wellbeing – life satisfaction – which involves a cognitive-judgmental process.

Another significant aspect of subjective wellbeing is the extent to which individuals experience pleasant emotional states (Diener, 1984). Emotional states are usually referred to in terms of positive and negative affect:

Positive Affect (PA) reflects the extent to which a person feels enthusiastic, active, and alert. High PA is a state of high energy, full concentration, and pleasurable engagement, whereas low PA is characterised by sadness and lethargy. In contrast, Negative Affect (NA) is a general dimension of subjective distress and unpleasurable engagement that subsumes a variety of aversive mood states, including anger, contempt, disgust, guilt, fear, and nervousness, with low NA being a state of calmness and serenity. (Watson et al., 1988, p. 1063)

Happiness can be understood, however, to include more than job satisfaction and subjective wellbeing. Some psychologists define wellbeing as involving more than an assessment of an individual's general emotional state. For example, Rath and Rastogi (2008) define psychological wellbeing as an individuals' positive psychological functioning. Some scholars also argue that "happiness" involves a combination of psychological or subjective wellbeing with employee job satisfaction (Wright & Cropanzano, 2004). According to Wright and Cropanzano (2004), happiness or psychological wellbeing consists of three characteristics:

1. Subjective experience in which people believe that they are happy;
2. The existence of positive emotion and lack of negative emotion; and
3. Perception of one's whole life (p. 341).

Keyes, Shmotkin and Ryff (2001) argue that the traditional definition of psychological wellbeing is influenced by formulations of human development and the existential challenges of life. In contrast to subjective wellbeing, six core dimensions of psychological wellbeing are highlighted by Ryff and Keyes (1995), namely: Self-Acceptance; Positive Relations with Others; Autonomy; Environmental Mastery; Purpose in Life and Personal Growth. Individuals who receive a high score

in each item of psychological wellbeing will portray contrasting attributes (Table 2.1).

Table 2. 1. Dimensions of Psychological Wellbeing

No	Dimensions of PWB	Attributes
1.	Self -Acceptance	<p>High scorer: possesses a positive attitude toward the self; acknowledges and accepts multiple aspects of self, including good and bad qualities; feels positive about past life.</p> <p>Low scorer: feels dissatisfied with self; is disappointed with what has occurred in past life; is troubled about certain personal qualities; wishes to be different than what he or she is.</p>
2.	Positive Relations with Others	<p>High scorer: has warm, satisfying, trusting relationships with others; is concerned about the welfare of others; is capable of strong empathy, affection, and intimacy; understands give and take in human relationships.</p> <p>Low scorer: has few close, trusting relationships with others; finds it difficult to be warm, open and concerned about others; is isolated and frustrated in interpersonal relationships; is not willing to make compromises to sustain important ties with others.</p>
3.	Autonomy	<p>High scorer: is self-determining and independent; is able to resist social pressures to think and act in certain ways; regulates behaviour from within; evaluates self by personal standards.</p> <p>Low scorer: is concerned about the expectations and evaluations of others; relies on judgments of others to make important decisions; conforms to social pressures to think and act in certain ways.</p>
4.	Environmental Mastery	<p>High scorer: has a sense of mastery and competence in managing the environment; controls complex array of external activities; makes effective use of surrounding opportunities; is able to choose or create contexts suitable to personal needs and values.</p> <p>Low scorer: has difficulty managing everyday affairs; feels unable to change or improve surrounding context; is unaware of surrounding opportunities; lacks sense of control over external world.</p>
5.	Purpose in Life	<p>High scorer: has goals in life and a sense of directedness; feels there is meaning to present and past life; holds beliefs that give life purpose; has aims and objectives for living.</p> <p>Low scorer: lacks a sense of meaning in life; has few goals or aims; lacks sense of direction; does not see purpose in past life; has no outlooks or beliefs that give life meaning.</p>
6.	Personal Growth	<p>High scorer: has a feeling development; sees self as growing and expanding; is open to new experiences; has sense of realising his or her potential; sees improvement in self and behaviour over time; is changing in ways that reflect more self-knowledge and effectiveness.</p> <p>Low scorer: has a sense of personal stagnation; lacks sense of improvement or expansion over time; feels bored and uninterested with life; feels unable to develop new attitudes or behaviours.</p>

Source: Ryff and Keyes (1995, p. 727). PWB = Psychological wellbeing

The present study shares the premise in the literature that wellbeing is a broad concept involving a variety of definitions and measurements. Therefore, in the context of Malaysia, workers' wellbeing is examined from a positive standpoint: a composite of workers' job satisfaction (Gipson-Jones, 2005; Makikangas & Kinnunen, 2003), life satisfaction, (Aryee, Luk, Leung & Lo, 1999; Gallagher & Vella-Brodrick, 2007) and psychological wellbeing (Fujishiro, 2005; Noor, 2002) and both positive and negative aspects of emotion including job affective wellbeing (Daniels, 2000) and positive and negative affect (Aryee et al., 1999; Gallagher & Vella-Brodrick, 2007). Noor (1999) states that including the measurements of both positive and negative aspects of wellbeing corresponds with the assumption that wellbeing is more than the absence of distress symptoms, but also involves the presence of positive affect. By using this comprehensive range of measurements, this study aims to capture a broad dimension of workers' wellbeing specific to the socio-cultural context of Malaysia. To date, no research has yet attempted to measure wellbeing with these composite indicators. This is a contribution to knowledge made by the current study.

The focus on the current study on positive aspects of wellbeing reflects Seligman and Csikszentmihalyi's claim (2000) that "the positive psychology proposes a shift from the traditional focus on weaknesses and malfunctioning towards human strengths and optimal functioning" (p. 290). A considerable proportion of the literature on wellbeing has placed a greater emphasis on risk factors of worker wellbeing rather than protective factors. Myers (2000) reports that negative emotions and work outcomes have been more intensively investigated with regard to wellbeing. For example, based on an electronic search of *Psychological Abstracts* and the *Journal of Occupational Health Psychology*, works on negative emotions and work outcomes were found to outnumber positive emotions and work outcomes by a ratio of 14 to 1 and 15 to 1 respectively (Myers, 2000).

In another example, studies by Kausto, Elo, Lipponen, and Elovainio (2005) and Makikangas and Kinnunen (2003) measured emotional exhaustion and stress, as well as mental distress and physical symptoms. Respondents who reported a low level or no experience of these negative states were considered to experience wellbeing. Overall reviews support the observation that positive states are not in

popular use in psychology (Schaufeli & Bakker, 2004). Thus, the present study attempts to focus more on the positive aspects of wellbeing without neglecting the negative aspects. This approach is consistent with the recommendation by Huhtala and Parzefall (2007) and Schaufeli and Bakker (2004) that both positive and negative aspects of wellbeing should be investigated as these aspects are not ‘antipodes’ but rather complementary to each other.

In Western settings, previous research indicates that workplace interventions aimed at enhancing employee wellbeing are conducted at the managerial level and thus neglect subordinate workers (Worrall & Cooper, 1998). Subordinate and junior employees, especially those from low social economic status exhibit poorer health (Chandola & Jenkinson, 2000) and low levels of wellbeing (Newell, 2000). Similarly, previous studies of employee wellbeing in Malaysia have only been carried out among professionals (Ahmad, 1996), academics and white collar secretarial-clerical workers (Noor, 1999; 2002) and have mainly focused on women and work family conflict relationships. Thus, the present study addresses the need for research among subordinate and junior workers corporations and blue collar workers as emphasised by Sparks et al. (2001). In addition, a more recent study by Srimathi and Kiran Kumar (2010), involving Indian employees, found that wellbeing differed between occupations and organisations: teachers reported the highest level of wellbeing; bank employees with a medium level; and the industrial employees reported the lowest. Therefore, it is imperative to direct research effort at industrial workers, specifically in the manufacturing sector – including assembly line workers, floor supervisors and factory managers. The current research intends to address the gap in knowledge regarding worker wellbeing in the manufacturing sector. It is hoped that the findings from the current research project will provide a better understanding of employee wellbeing in the manufacturing sector and will be able to be used to enhance their wellbeing.

Numerous studies of wellbeing use different measures of wellbeing. These measures include, for example, job satisfaction, family satisfaction and life stress (Parasuraman et al., 1992); job satisfaction and psychological wellbeing (Chay, 1993); positive affect and psychological distress (Noor, 1996; 1999); job satisfaction and psychological distress (Noor, 2002; 2004); life satisfaction, psychological

distress and physical symptoms (Noor, 2006); physical and mental symptoms (Siu, Lu & Spector, 2007); life satisfaction, positive affect and negative affect (Gallagher & Vella Brodrick, 2008); and job satisfaction and psychological health (Lawson, Noblett & Rodwell, 2009) – to name a few. Thus, the current study reviews the predictor variables (psychosocial work environment variables, organisational justice and work family conflict) of wellbeing reported in the literature. Table 2.2 provides an overview of the wellbeing indicators and the respondents involved in previous studies.

Table 2. 2. Summary of Indicators of Wellbeing and Respondents in Previous Wellbeing Research

Author	Country	Wellbeing indicators	Participants
Parasuraman et al. (1992)	USA	<ul style="list-style-type: none"> • Job satisfaction • Family satisfaction • Life stress 	Managers and professionals
Chay (1993)	UK	<ul style="list-style-type: none"> • Job satisfaction • Psychological wellbeing 	White collar workers in financial institutions, banks, insurance company employees, entrepreneurs
Noor (1996)	UK	<ul style="list-style-type: none"> • Positive affect • Psychological distress 	Helping professions: (nurses, social workers); white collar skilled non-manual workers: (secretaries, clerical workers)
Noor (2004)	UK	<ul style="list-style-type: none"> • Job satisfaction • Psychological distress 	Not stated. 72% women with a college or university degree. 37% professionals. Recruited from the University of Oxford and the Oxford City Council
Brough & Pears (2004)	Australia	Affective reactions specific towards job such as tense, relaxed, enthusiastic	95 public sector human services workers
Lu, Gilmour, Kao & Huang (2006)	Taiwan and UK	<ul style="list-style-type: none"> • Job satisfaction • Family satisfaction • Happiness 	220 Taiwanese and 103 British; the majority of respondents were managers
Gallagher & Vella-Brodrick (2008)	Australia	<ul style="list-style-type: none"> • Life satisfaction • Positive affect • Negative affect 	267 recruited from the general population with the majority having completed university, college and postgraduate studies (72.6%)
Lawson et al. (2009)	Australia	<ul style="list-style-type: none"> • Job satisfaction • Psychological health 	587 members of the police force
Noor (1999)	Malaysia	<ul style="list-style-type: none"> • Positive affect • Psychological distress 	Academic/professional and secretarial/clerical
Noor (2002)	Malaysia	<ul style="list-style-type: none"> • Job satisfaction • Psychological distress 	Academic/professional and secretarial/clerical

Table 2.2. (continued)
Summary of Indicators of Wellbeing and Respondents in Previous Wellbeing Research

Author	Country	Wellbeing Indicators	Participants
Noor (2006)	Malaysia	<ul style="list-style-type: none"> • Life satisfaction • Psychological distress • Physical symptoms 	Clerks and secretaries, teachers, lecturers, managers and consultants; professionals: (doctors, lawyers); and others (designers, salespersons, programmers, writers, and brokers)
Samad (2006)	Malaysia	<ul style="list-style-type: none"> • Job satisfaction • Family satisfaction 	Non-professional women
Siu et al. (2007)	China (Hong Kong; Beijing)	<ul style="list-style-type: none"> • Physical symptoms • Mental symptoms 	Heterogenous samples; 65.3 percent were managers
Malek, Mearns & Flin (2010)	Malaysia and UK	<ul style="list-style-type: none"> • Psychological wellbeing – composite of anxiety, stress and depression 	617 Malaysian fire fighters and 436 UK fire fighters

Source: Developed for this thesis from reviewed literature.

Note: The majority of the studies carried out in both developed and developing country settings focused on professionals and white collar workers.

2.3 Theoretical Research Background

The current study reviews the influential models from the literature that provide the most crucial determinants of work-related wellbeing and health, namely the Job Demand-Control model (Karasek, 1979), the Job Demand-Control-Support model (Johnson & Hall, 1988; Karasek & Theorell, 1990), the Job Demand-Resources model (Bakker & Demerouti, 2007; Demerouti & Bakker, 2001) and the Effort-Reward Imbalance model (Siegrist 1996; Siegrist et al., 2004). Among these models, JDC and JDCs were adopted as the theoretical background of the current study.

2.3.1 Job Demand-Control and Job Demand-Control-Support models

Among the widely used theoretical frameworks that relate the characteristics of a job to health and wellbeing is the Job Demand-Control model (Karasek, 1979). JDC provides crucial determinants of work-related wellbeing and health, and has been the most influential work stress model in occupational health psychology since the 1980s (de Lange, Taris, Kompier, Houtman & Bonger, 2003; Lindfords et al., 2007). This model identifies two essential aspects of work environments: job demand and job control.

According to Karasek (1979) job demands are:

the psychological stressors involved in accomplishing the workload, stressors related to unexpected tasks, and stressors of job related personal conflict (p.291).

Job control, also referred to as decision latitude, is defined as a: working individual's potential control over his task and his conduct during the working day (pp.289-290).

Karasek's (1979) concept of decision latitude is composed of two constructs: decision authority, referring to employees' authority to make job-related decisions; and skill discretion, measuring the extent of skill that employees use on the job. In a later study, Jones and Fletcher (1996) defined job demands as the physical, psychological, social, or organisational aspects of jobs that require physical and/or psychological efforts, and are associated with physiological and/or psychological costs.

Figure 2.2 summarises the four types of jobs identified in Karasek's model. The dichotomy of job demands and job control produces: a) for the high strain job type - high job demands and low job control; b) for the active job type - high job demands and high job control; c) for the low strain job type – low job demands and high job control; and d) for the passive job type – low job demands and low job control. Karasek's Job Demand-Control Model (1979) hypothesised that a combination of high job demands and low job control produced job strain. The most negative impact of psychological strain was found to be among employees working with high job demands and low job control (high strain job). This postulation was known as the strain hypothesis.

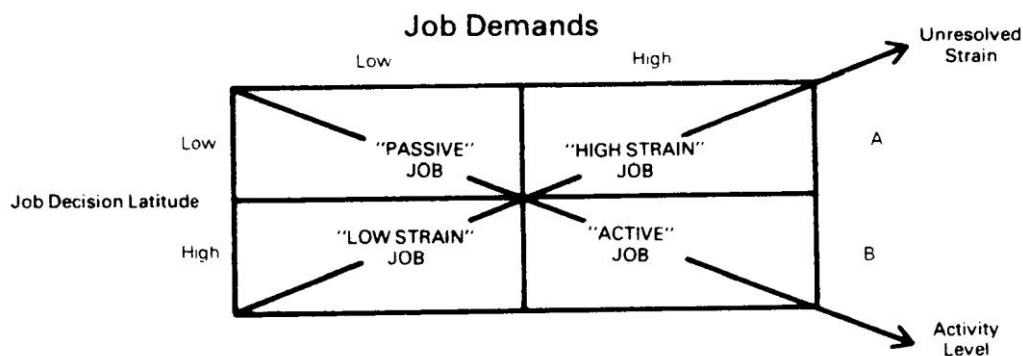


Figure 2. 2 The Job Demand-Control model adopted from Karasek (1979)

In addition to the independent and additive contribution of job demands and job control in predicting wellbeing, the JDC model also postulates the *buffer hypothesis* (an interactive joint effect of job demands and job control) in which job control can moderate the negative consequences of high job demands on strain and wellbeing. The model also includes the learning hypothesis which posits that the passive or active nature of a job can influence an employee's learning or growth. Employees who possessed high demands and control in their work environment (active jobs) became very productive and acquired new skills (Karasek, 1979). The passive job type was characterised as a job condition where employees experienced both low job control and low demands. Employees in this group faced difficulty in problem solving or tackling challenges and were unmotivated to participate in overall activities. However, the current study does not address the active and passive jobs

aspect in any detail as the aim of this study is to focus on wellbeing prediction. Numerous studies apply the JDC and JDCS models to test the strain hypothesis (e.g. Macklin et al., 2006; van Yperen & Hagedoorn, 2003) rather than learning hypothesis.

Johnson (1986) argued that the JDC mainly focused on job control as a potential psychosocial resource without considering social support which is as important as job control as a moderator. Thus, in 1988, it was proposed that Karasek's model be extended by the addition of social support as a third dimension. In the Job Demand-Control-Support model developed by Johnson and Hall (1988), the highest risk of poor health and wellbeing is expected when employees experience a high isolation-strain (iso-strain) job, that is, a job characterised by high job demands, low job control and low social support.

Similar to the JDC, the JDCS model also predicts main, additive and interactive predictor effects. Main effect refers to a single predictor which has a positive or negative association with the criterion variable (e.g., high job demand is associated with low employee wellbeing, whereas high job control and social support are associated with high wellbeing). In other words, main predictor effects form the basis for testing using multiple predictor JDC and JDCS models to assess workers wellbeing or levels of job strain. For a prediction model with multiple predictors, the additive or the interactive predictors effects need to be examined (Bradley, 2004). Additive effect involves the evaluation of multiple predictors in the prediction model (e.g. job demands + job control or job demands + job control + social support) which contribute jointly to the prediction of employee wellbeing. For example, in a hierarchical regression analysis, adding a predictor variable (e.g. job control) into the existing model (e.g. job demands) demonstrates the extent of the specific contribution of a predictor to the increase in the variance of the criterion variable accounted for by predictors. In this scenario, the predictors act conjunctively or cumulatively (Bradley, 2004, p.24) (also referred as a linear additive effect) in predicting the criterion variable. The additive model implies that when employees experience high job demands + low job control + low social support, these factors combine additively in predicting employee wellbeing.

An interaction effect (synergistic effect) in the JDC model has been described as a joint interactive predictor contribution of job demands x job control (Karasek, 1979). The inclusion of social support (Johnson, 1986; Johnson & Hall, 1988) extends the JDC model, resulting in an additional joint interactive moderating effect (i.e., job demands x social support). According to Bradley (2004), in a two-way interaction effect involving more than one predictor variable, one predictor acts as the moderator variable of another. In this review, the following two-way interaction is discussed: a) job control moderates the negative consequences of high job demands on wellbeing (job demands x job control); and b) social support moderates the negative consequence of high job demands on wellbeing (job demands x social support). These moderating effects are present when the interactive predictors (e.g. job demands x job control, or job demands x social support) statistically contribute to add to the variance explained by the additive prediction model (Aiken & West 1991; Jaccard, Turrisi & Wan, 1990)

Finally, a higher order interactive predictor effect can be observed where the joint interactive effect of three predictors (job demands x job control x social support) may improve prediction of the criterion variable above and beyond the variance explained by the additive prediction models and two-way interactive predictors. For example, social support may moderate the negative consequences of high job demands and low job control on wellbeing (job demands x job control x social support). In addition, social support is predicted to act as a buffering or moderating variable to cope with the negative consequences of high job strain.

Early research on Karasek's JDC model evaluated job demands and job control as predictors of psychosomatic complaints and cardiovascular outcomes. For example, Karasek's (1979) original work investigated US and Swedish populations and found that these work characteristics were related to exhaustion, depression, job dissatisfaction, life satisfaction, pill consumption and sick days. In another study, Karasek, Baker, Marxer, Ahlbom and Theorell (1981) found, using a sample of Swedish male workers, that high job demands and low job control were associated with cardiovascular disease among the respondents. Other studies on the JDC and JDCS models in the 1980s focused on similar physical and psychosomatic aspects (e.g. Johnson & Hall, 1988; Johnson, Hall & Theorell, 1989). However, a recent

review by Panatik (2010) found that studies have expanded the model to include mental or psychological strain or wellbeing.

Van der Doef and Maes (1999) in a review of studies from 1979 to 1997 which adopted JDC and JDCS, found that the majority of the reviewed studies focused on the outcome of general psychological wellbeing and job satisfaction. According to van der Doer and Maes, the strain and iso-strain hypotheses received consistent support compared to the buffer hypothesis of both the JDC and JDCS models in investigating psychological wellbeing, job satisfaction, burnout and job-related psychological distress. The factors that contributed most to the supportive findings with regard to the strain and iso-strain hypotheses generally were derived from studies that were cross sectional in design, involving large samples, including a blue collar worker sample and a male or mixed sample (van der Doef & Maes, 1999).

De Lange et al. (2003) expanded van der Doef and Maes's (1999) study and investigated the use of the JDC and JDCS models focusing on longitudinal research from 1979 to 2000 in a total of 45 articles. De Lange et al. reported that 34 out of 45 articles (76 percent) adopted the JDCS model and 23 out of 45 studies (51 percent) examined self-report measures for health or wellbeing. Of the longitudinal studies using the JDC and JDCS models, only 19 met the quality methodology criteria (see de Lange et al.). Although de Lange et al.'s review was stringent and only took into account studies with sound methodology, the findings were consistent with the observations by van der Doef and Maes that high quality studies provide strong support for main predictor effects (job demands, job control or social support as separate variables) as well as modest support for the interactive strain hypothesis of the JDC and JDCS models.

A recent review of the application of JDC and JDCS models was conducted by Hausser, Mojzisch, Niesel and Schulz-Hardt (2010). This review surveyed studies of all types of research methodologies, including longitudinal studies, without imposing a quality cut-off. The review involved 83 studies over the years 1998 to 2007 and reported that the pattern of study findings is almost identical to that observed in previous reviews (see de Lange et al., 2003; van der Doef & Maes, 1999). Hausser et al. concluded their review with three major points: a) there is

support for the additive effect of job demands, job control and social support on general psychological wellbeing; b) there is more support for the additive effect of job demands, job control and social support on job-related wellbeing (e.g. job satisfaction) in cross-sectional studies compared to longitudinal studies; and c) there is weak evidence for the buffer hypothesis of the JDC and JDCS models.

Xie (1996) reported that research adopting Karasek's model had been conducted in societies that matched Hofstede's category of an individualist culture, therefore, the generalisation of the model to a collectivist society would be limited. Thus, the findings of the current study should provide useful information on the applicability of such a model to a non-western collectivist society, particularly in the context of Malaysian manufacturing workers. In addition, the current study will examine the main and additive effects as well as the interactive models (two and three-way interactions) which have not been addressed in previous studies in Malaysia (e.g. Huda et al., 2004; Maizura, Retneswari, Moe, Hoe & Bulgiba, 2010).

Kasl (1989) and Wall, Jackson, Mullarkey and Parker (1996) argued that Karasek's model appeared to reveal main and additive effects rather than interactive effects. However, some studies did not find the additive effect of job demands and social support (e.g. Pomaki & Anagnostopoulou, 2003; Rasku & Kinnunen, 2003) and some studies did not find the additive effect of job demands and job control (e.g. Marshall, Barnett & Sayer, 1997; Totterdell, Wood & Wall, 2006). More research appears to be required to evaluate the elusive additive effects of the JDCS variables and moderator effects of job control and social support on worker wellbeing.

2.3.2 Job Demand-Resources model

In the Job Demand-Resources model, work conditions are categorised as two - job demands and job resources (Demerouti et al., 2001). Job demands refer to "those physical, psychological, social, or organisational aspects of the job that require sustained physical and/or psychological (cognitive and emotional) effort or skills and are therefore associated with certain physiological and/or psychological cost" and job resources refer to "those physical, psychological, social, or organisational aspects of the jobs that are either/or: a) functional in achieving work goal; b) reduce job demands and the associated physiological and psychological

costs; c) stimulate personal growth, learning, and development” (Bakker & Demerouti, 2007, p. 132).

The JD-R model proposes that work characteristics evoke two different processes, namely, the *health impairment process* and *motivational process* (Bakker & Demerouti, 2007). In the first process, it is predicted that poorly designed jobs or high job demands negatively affect employee wellbeing and, in turn, organisational outcomes (Bakker, Demerouti, Taris, Schaufeli & Schreurs, 2003). In contrast, in the second process, it is predicted that job resources positively affect employee wellbeing and, in turn, organisational outcomes (Bakker et al., 2003). The components and processes of the model are illustrated in Figure 2.3.

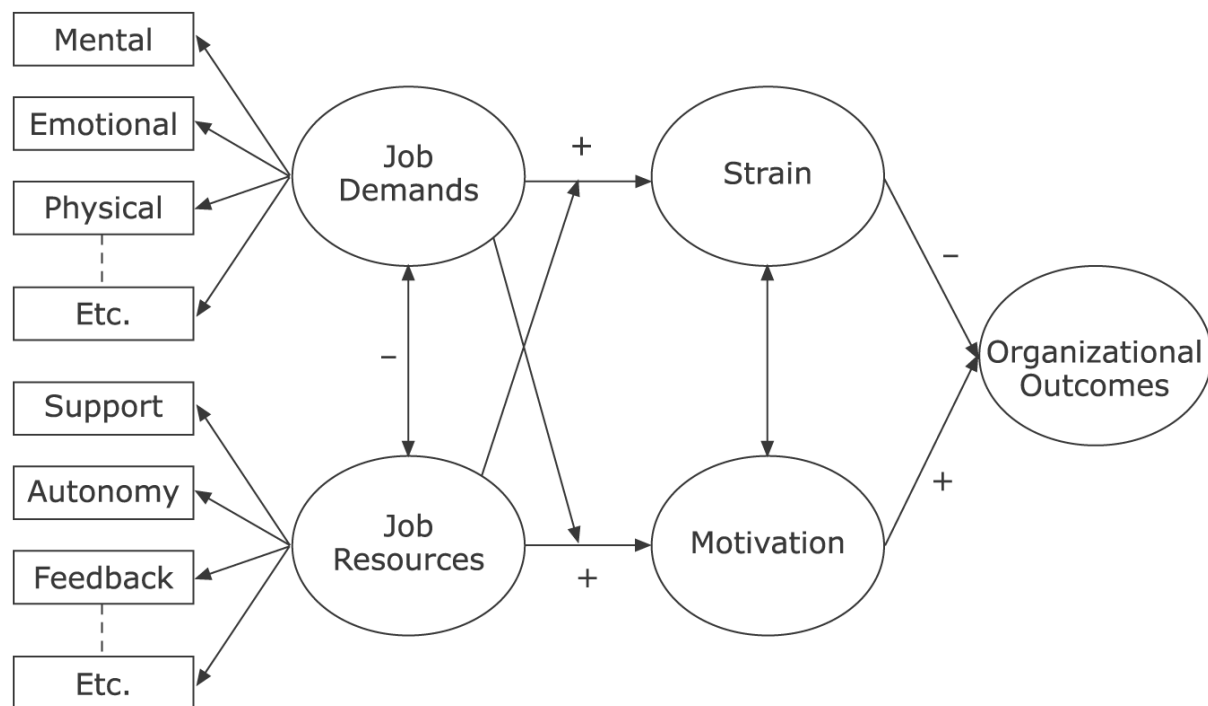


Figure 2. 3 Job Demand-Resources model (Bakker & Demerouti, 2007)

In addition to the main effect of job demands and job resources, JD-R proposes the interaction of job demands and job resources (Hakanen, Bakker & Demerouti, 2005). Unlike the JDC and JDCS models that focused mainly on specific psychosocial work environment variables (job demands, job control and social support) in testing the strain/iso-strain or buffer hypotheses, the JD-R model proposed there were several different types of job resources that can buffer different

types of job demands (Bakker & Demerouti, 2007). Thus, the current study adopts the JDC and JDCS models by incorporating different types of demands (job demands, organisational justice and work family conflict), as proposed by the JD-R model. In addition, the study investigates the buffer hypothesis testing the moderating role of job resources (job control and social support) on the relationship between three different demands on employee wellbeing. Since the current study focuses on the main, additive and buffering effect (moderating effect hypothesis) instead of the mediator effect hypothesis, the JDC and JDCS models are the most appropriate theoretical background chosen for this study.

2.3.3 The Effort-Reward Imbalance model

The Effort-Reward Imbalance (ERI) Model (Siegrist, 1996; Siegrist et al., 2004) emphasises more on the reward rather than job control as postulated in Karasek (1979). The model postulates that the effort spent at work should be exchanged with occupational rewards in three transmitter systems; money (i.e., adequate salary), esteem (i.e., support and respect), security/career opportunities (i.e., promotion, job security and status) (de Jonge, Bosma, Peter & Siegrist, (2000 p. 1318). Moreover, the ERI Model claims that working conditions where the employee exerts high effort but receives low reward may produce negative outcomes, such as cardiovascular risks, poor health and absence through sickness. The significance of the ERI Model is that it combines both extrinsic and intrinsic components as these accurately estimate the stress experienced (de Jonge, Bosma, Peter & Siegrist).

Comparing the above conceptual model, this study focuses on Job Demand Control Model (Karasek 1979) and Job-Demand-Control (Support) Model instead of Effort Reward Imbalance Model (Siegrist 1996; Siegrist et al., 2004) because;

- i. The investigation of the study is restricted to the psychosocial work environment; job control, psychological demands and support rather than the broader aspects covered by the ERI Model, which includes the macroeconomic labour market, such as job security, mobility and salaries (de Jonge, Bosma, Peter & Siegrist (2000 p. 1318).
- ii. The rationale for the Job Demand Control Model (Karasek, 1979) as a conceptual model in this study is that its emphasis on situational

characteristics is comparable to this study which investigates the external factors instead of internal as predictors of employee well being. In contrast, the ERI Model focuses on both situational and personal characteristics (overcommitted employee) components.

In summary, studies have found that the JDC model (Karasek, 1979) and JDCS model (Johnson & Hall, 1988; Karasek & Theorell, 1990) have some limitations. For example, there are inconsistencies in the findings regarding the role of job control in moderating the impact of job demands on strain. These inconsistencies could be attributed to Karasek's model, which was criticised as too simple (Johnson, Hall & Theorell, 1989; Parkes, Mendham & von Rabenau, 1994; Rodriguez et al., 2001). Loretto et al. (2005) and Spark and Cooper (1999) argued that the JDCS model overwhelmingly focuses on the psychosocial work environment variables (job demands, job control and social support) without considering the individual aspect or other job variables. Fujishiro (2005) emphasised the limitations of the JDCS model and suggested considering other variables in future research. Nevertheless the JDC and JDCS models continue to be the most commonly applied for investigations among occupational stress researchers (e.g. de Lange et al., 2003; Holman & Wall, 2002). Barling and Griffiths (2003), for example describe Karasek's demand-control model as one of the most influential works in the history of occupational health psychology.

Theoretically, the research framework of the current study was based on the JDC, JDCS. However, corresponding to the recommendations of previous studies (e.g. Fujishiro, 2005; Loretto et al., 2005; Spark & Cooper, 1999) the current study expands JDC and JDCS by incorporating not only the original JDCS variables (job demands, job control and social support) but has included other variables, namely, organisational justice and work family conflict. The purpose is to investigate the extent to which additional variables could explain wellbeing. Previous studies have adopted this theoretical framework but did not test the variables simultaneously in a single study (Lingard & Francis, 2006; Mauno et al., 2006; Rousseau et al., 2009).

Experience of stressors (high job demands, perceived low organisational justice and high work family conflict) were associated with low levels of employee

wellbeing. Job control and social support are two psychosocial work environment factors that buffer the negative consequences of employee stressors. These two variables were also regarded as job resources that can buffer the impact of stressors on wellbeing. In the current study, the additive model tests the strain and iso-strain hypotheses and involves job demands, job control, social support as well as organisational justice and work family conflict. On the other hand, the buffer hypothesis postulates that job control and social support moderate the negative consequences of stressors (high job demands, perceived low organisational justice and high work family conflict) on levels of employee wellbeing.

The following sections discuss several predictors of employee wellbeing; psychosocial work environment, organisational justice and work family conflict.

2.4 Psychosocial Work Environment

A report of the joint International Labor Organisation in conjunction with the WHO Committee on Occupational Health defined psychosocial factors at work as:

interactions between and among work environment, job content, organisational conditions and workers' capacities, needs, culture, personal extra-job considerations that may, through perceptions and experience, influence health, work performance and job satisfaction. (International Labor Organisation & World Health Organisation, 1984, p. 3)

Another definition of the psychosocial work environment is suggested by Seigrist and Marmot (2004, p. 1465), who define it as:

the range of opportunities given to an individual to meet his or her need of wellbeing, productivity and positive self experience.

Growing numbers of studies have revealed that social supports such as advice, assistance and feedback have a strong relationship with employees' wellbeing and lack of stress (Beehr, King & King 1990; Fujishiro, 2005; Leong, Furham & Cooper, 1996). In their study, Karasek and Theorell (1990) defined social support at work as "overall levels of helpful social interaction available on the job from co-workers and supervisors" (p. 69). Social support gained from supervisors and senior personnel who were experienced in dealing with work-related issues was found to be particularly helpful (Beehr et al., 1990). The support provided by co-workers was found to take different forms in the workplace, including both emotional and

instrumental support (Beehr, Jex, Stacy & Murray, 2000; Ducharme & Martin, 2000). Researchers have found that emotional support consists of providing care, empathy and love, demonstrated in ways such as by listening to others' personal problems. Instrumental support refers to tangible help that co-workers may provide, by for example, performing assigned tasks for others. In this sense, co-workers constitute an important source of support, especially when task accomplishment allows employees to interact with their co-workers (Parris, 2003). This was further confirmed in a study by Park, Wilson and Lee (2004), which found that social support in organisational settings, in the form of organisational, supervisor and co-worker supports, is essential to wellbeing.

The following section reviews previous studies that have adopted the JDC and JDCS models by focusing on the main, additive and interaction effects of JDCS variables. Typically, hierarchical multiple regression analyses are the most widely used to test the JDC and JDCS models (e.g. Macklin, et al., 2006; Niedhammer, Chasting & David, 2008; Pomaki & Anagnostopoulou, 2003).

2.4.1 Main and additive effects of JDCS variables

Reviews of studies conducted over three different periods, by van der Doef and Maes (1999) for the years 1979 to 1997, de Lange et al. (2003) for 1979 to 2000 and Hausser et al. (2010) for 1998 to 2007, generally report consistent findings regarding the strain and iso-strain hypotheses of the JDC and JDCS models. The strain hypothesis of the JDC model postulates that individuals experience high strain and low levels of wellbeing whenever working with high job demands and low job control (Karasek, 1979). The JDCS model postulates the iso-strain hypothesis in which employees experience job strain and low levels of wellbeing whenever working within high job demands, low job control and low social support. Evidence shows that job demands, job control and social support create the main and additive effects on strain and wellbeing (de Lange et al., 2003; Hausser et al., 2010; van der Doef & Maes, 1999).

A review of 20 years of empirical research using Karasek's model confirmed that high demands and low control work environments are associated with lower psychological wellbeing and job satisfaction, burnout and other forms of

psychological distress (van der Doef & Maes, 1999), and significantly impact on employee wellbeing (Noblet, 2003). An early study by Marshall et al. (1997) involving 600 manufacturing and services industries in the United States found that job demands significantly affect workers' levels of psychological distress. Some studies investigated the main and additive effects of JDCA variables and found that job demands, job control and social support were statistically predictive for wellbeing, reports of health risk, levels of psychological wellbeing, job satisfaction and fatigue (Chambel & Curral, 2005; Macklin et al., 2006; Niedhammer et al., 2008; Pelfrene et al., 2002; Rodriguez et al., 2001; van Yperen & Hagedoorn, 2003). In an experimental study involving 120 undergraduate students in Australia, Searle, Bright and Bochner (1999) found that job demands and social support have a significant main effect on stress and performance. These students showed poorer performance in conditions of high job demands and low control. Jobs that require psychological demands and low social support have also been found to have a negative impact on employee mental health, vitality and burnout (Escriba-Aguir & Tenias-Burillo, 2004) and job satisfaction (Huda et al., 2004). These jobs are also positively associated with anxiety, stress and depression (Edimansyah et al., 2008).

Likewise, de Rijk, Le Blanc, Schaufeli and de Jonge (1998) investigated Karasek's hypothesis using a sample of 367 Dutch nurses and reported the main and additive effects of high job demands and low job control on workers burnout. Escriba-Aguir and Tenias-Burillo (2004) found that low job control and low co-worker support were associated with poor psychological wellbeing. Meanwhile, among hospital workers and non-permanent employees it was found that involvement in high workload and psychological job demands with low decision authority and skill discretion (low job control) were related to minor psychiatric morbidity, self-reported health problems and higher absenteeism (Gimeno, Benavides, Amick III, Benach & Martinez, 2004; Kivimaki, Elovainio, Vahtera & Ferrie, 2003). Brough and Pears (2004), in their study of 205 public sector human services workers, found that, although job demands were significantly associated with lower job satisfaction and work wellbeing, job control increased job satisfaction and work wellbeing.

On the other hand, no statistical association was found between job control and psychological distress (Marshall et al., 1997), between job control and stress (Searle et al., 1999) or between job control and workers' stress, anxiety and depression (Edimansyah et al., 2008).

Previous research findings into the role of social support in achieving positive outcomes in terms of employee wellbeing have been inconsistent and contradictory. For example, social support was found to be associated with increased absenteeism in a study of 10,308 non-industrial civil servants in London (Rael et al., 1995). In later works, neither Pomaki and Anagnostopoulou (2003) nor Rasku and Kinnunen (2003) found that social support predicts wellness and health outcomes in Greek and Finnish secondary school teachers, respectively.

In contrast, supervisor support was found to increase the level of respondents' intrinsic motivation (van Yperen & Hagedoorn, 2003), to increase performance (Bhanthumnavin, 2003), to have strong associations with job satisfaction (Brough & Pears, 2004) and to contribute to employee psychological wellbeing (Gilbreath & Benson, 2004). Conversely, low social support leads to severe outcomes for employees' psychological wellbeing (Escriba-Aguir & Tenias-Burillo, 2004). These findings have been supported by other researchers who have established the importance of social support in enhancing employee wellbeing as a protective factor against depression and stress (Netterstrom et al., 2008), and decreasing the risk of future depression (Edimansyah et al., 2008). For example, Edimansyah et al. (2008) found that social support in the workplace predicted higher perceptions of quality of life among 698 male automotive workers in Malaysia. Similarly, Chen, Siu, Lu, Cooper and Phillips (2009), in their research involving 843 employees in eight types of domestic and foreign-invested enterprises in China, found that informal social support decreased depression.

In reviewing the literature, it is found that the main effect of JDCA variables on wellbeing are substantially supported and that a clear relationship is established between those variables and outcomes measured. However, the job demands x job control interaction is inconclusive, receiving only modest support (Chay, 1993; van der Doef & Maes, 1999). Besides the inconsistencies in the literature regarding the

moderating effect of job control, previous studies have indicated inconsistencies in the moderating effects of social support on wellbeing, work stress and occupational stress (van der Doef & Maes, 1999; Dormann & Zapf, 2002; Brough & Pears, 2004).

2.4.2 Two-way and three-way interaction effects of JDC and JDCS variables

In addition to the strain and iso-strain hypotheses, Karasek (1979) and Johnson and Hall (1988) postulated a buffering hypothesis which tested two-way interaction effects (demands x control and demands x support) as well as three-way interaction effects (job demands x job control x social support). However, in contrast to the findings on the main and additive effects of job demands, job control and social support, significant two-way interaction received only modest support (de Lange et al., 2003; Hausser et al., 2010; van der Doef & Maes, 1999). Subsequent sections will briefly review studies that test the two-way interaction (moderating effect of job control and social support) as well as three-way interaction, the majority of which have been conducted in western countries.

2.4.2.1 Moderating effects of job control on job demands and wellbeing

Van der Doef and Maes (1999) report that, out of 31 studies that examined the moderating effect of job control on the relationship between job demands and wellbeing, only fifteen partially supported the buffering hypothesis of the JDC model. For instance, Marshall et al. (1997) reported that the buffering hypothesis on the moderating effect of job control on the relationship between job demands and psychological distress was partially supported. Similarly Pelfrene et al. (2002) did not find evidence for a buffering effect of job control on the relationship between job demands and psychological distress, and neither Pomaki and Anagnostopoulou (2003) nor Rasku and Kinnunen (2003) found evidence of a buffering effect on teachers' wellness outcomes. Testing the buffering hypothesis of the JDC model, Niedhammer et al. (2008) did not find any interaction between job demands x job control on health outcomes in self-reported health, sickness absence and work injury among French workers.

In contrast, other studies (e.g. Chambel & Curral, 2005; Macklin et al., 2006; Meier, Semmer, Elfering & Jacobshagen, 2008; van Yperen & Hagedoorn, 2003) have supported the hypothesis that job control buffers the demands and

strain/wellbeing relationship. For example, van Yperen and Hagedoorn's (2003) study, involving 555 nurses in the United States, found an interactive joint effect of job demands x job control on workers' fatigue, in which job control ameliorated the high psychological job demands and fatigue relationship. The study by Chambel and Curral (2005), involving 825 Portuguese university students, also found a significant effect of two-way interaction in which job control mitigates the relationship between job demands and anxiety/depression. Using data collected from a sample of 227 Australian employees, Macklin et al. (2006) found evidence of an interactive effect of job control and job demands, in which job control moderated the consequences of job demands for psychological distress. In a later study, Meier et al. (2008) found that job control buffered the negative effect of stressors on health and wellbeing among 96 Swiss employees exhibiting internal locus of control. However, the buffering effect of job control did not occur among respondents with an external locus of control.

2.4.2.2 Moderating effects of social support on job demands and wellbeing

According to van der Doef and Maes (1999) due to the limited and inconsistent results on the role of social support in the JDCS buffer hypothesis, further investigations should be undertaken. A few studies have shown positive results on the moderating effects of social support, but other studies have not. For example, a survey by Beehr et al. (1990) conducted among 225 nurses in the United States, showed that social support buffers the relationship between occupational stressors and individual strain. In addition, Chay's (1993) study, involving 117 entrepreneurs, confirmed that the protective role of social support in the workplace has a strong buffering effect that mitigates stressors and enhances physical and psychological wellbeing. In that study, individuals with high social support were little affected by low job discretion while those with low support were more likely to experience psychological illness. Similarly, Chen et al. (2009) found that informal social support partially moderated the relationship between job stressors and depression.

Conversely, in a study of 119 two-career couples, Parasuraman et al. (1992) established that social support did not mitigate the relationship between work role stressors, work family conflict and family role stressors, and wellbeing. Furthermore,

social support neither buffers the relationship between job strain and psychological distress nor buffers the negative effect of job characteristics on respondents' wellness (Pelfrene et al., 2001; Pomaki & Anagnostopoulou, 2003; Rasku & Kinnunen, 2003). Fujishiro (2005) also found that social support provides no moderating effect between stressors (i.e., role conflict and workload) and job strain and psychological wellbeing.

Cultural differences might contribute to the inconsistencies in the findings of these studies. Barak, Findler and Wind (2003) state that the structures of social support networks may vary from one culture to another. By taking into account Geert Hofstede's (2009) dimensions of cultural differences based on nationality (power distance, individualism-collectivism, femininity-masculinity and uncertainty-avoidance), the current study suggests the need for further investigation of social support in the Malaysian context, an example of a collectivist culture (Bochner, 1994; Burns & Brady, 1992). Barak et al.'s study involving 950 workers in the United States (individualistic culture) and 114 workers in Israel (collectivistic culture) found that the structure of the social support network for the Israeli workers was highly interconnected compared to the social support network for the workers in the United States. In the collectivistic society, support from supervisors, colleagues and co-workers is likely to contribute more towards individuals' wellbeing than more individualistic values such as job satisfaction.

As well as differences in cultural background, it is possible that the inconsistencies in the findings were due to different foci on the sources of social support (supervisors, co-workers, family, friends and neighbours). For example, Beehr et al. (1990) focused on supervisors' support rather than support from co-workers or others. In their study, social support was operationalised in terms of communications between supervisors and subordinates. Salient effects were found when non-job related communication acted as the moderator. Meanwhile, a study by Parasuraman et al. (1992) assessed both work and spousal support. They used House's (1981) questionnaire, in which respondents rated the same items measuring different sources of support. It is possible that respondents perceived their support as coming from only one source, either work or spousal, when answering the questionnaires. In a later study, Chen et al. (2009) used seven items of social support

developed by Xiao (1994) to measure support given by: family including spouse, siblings and relatives; friends; neighbours; and co-workers. Support was measured in terms of objective support (e.g. “When you encounter problems, do you receive comfort and concern from spouse, friends, neighbours or co-workers?”) and subjective support (e.g. “How many close friends that you can receive support and care?”).

2.4.3 Three-way interaction effect of job demands, job control and social support

With regard to the three-way interaction effect, a review of the related literature reveals inconsistent findings (e.g. Chambel & Curral, 2005; Pomaki & Anagnostouloulou, 2003; Rasku & Kinnunnen, 2003; Rodriguez et al., 2001; Searle et al., 1999). For example, van Yperen and Hagedoorn (2003) reported a significant three-way interaction (job demands x job control x social support) on employees’ intrinsic motivation. The interpretation of interaction showed that high job demands were associated with greater intrinsic motivation in a high control and a low level of social support, whereas high social support was associated with greater intrinsic motivation regardless of the level of job demands and job control.

Contrary to the prediction of the JDCS model, Rodriguez et al. (2001) found that their findings did not corroborate the assumption that low social support, combined with low job control and high job demands, is associated with increased job dissatisfaction. Contrary to the model prediction, increased job demands with increased job control (perceived job control and high internal locus of control) together with high social support are associated with higher job dissatisfaction. In this context, workers experienced a damaging effect of excess control, specifically in high social support situations. Also relevant to testing three-way interaction is the study by Macklin et al. (2006) which reported the insignificance of the demand x control x social support interaction on employees’ psychological distress and job satisfaction.

2.4.4 Cross-cultural perspectives on the JDC and JDCS models

Verhoeven, Maes, Kraaij and Joeke (2003) recommend that studies testing the JDCS model be carried out in non-Western settings. Most of the available findings represent data relevant to Western settings, which raises concerns about the validity of the model in different cultural contexts. In addition, concepts such as job control and social support have different connotations in different countries with people from different cultural backgrounds (Verhoeven et al., 2003).

In the literature, only a few studies have adopted the JDC and JDCS models outside the Western context. For instance, Kitaoka-Higashiguchi et al. (2002) surveyed 8,342 manufacturing workers in Japan. The results supported the main effect of job demands and job control on depression, however, no interaction effect of job demands x job control was reported. Shimazu, Shimazu and Odahara (2004) surveyed 867 Japanese employees and found that job demands and social support have main and additive effects on job satisfaction. Incorporating active coping as the predictor variable which was measured with items such as “I took concrete action by myself” did not reveal any statistically significant effect on job satisfaction. However, the two-way interaction between active coping x co-workers support was significant, with a positive relationship between active coping and job satisfaction in a group of workers who perceived a high level of support from their co-workers. None of the three-way interactions was statistically significant.

A review of Edimansyah et al.’s (2008) study involving 728 automotive assembly workers in Malaysia, specifically on JDCS variables, shows that job demand was associated with self- perceived depression, anxiety and stress, whereas, supervisor support was associated with depression and stress. On the contrary, job control was not associated with any of the outcomes. The interaction effect of job demands x supervisor support was found to be insignificant.

On the contrary, the findings of Wong and Lin (2007), from a survey of 380 Taiwanese employees, support the main and buffering effect hypotheses of the JDC and JDCS models. Job demands, job control and supervisor support were associated with work to leisure conflict. Job control and social support were found to buffer the negative consequence of high job demands on employees’ perception of work to

leisure conflict. In addition, a three-way interaction effect was also reported by their findings.

Instead of investigating the main, additive and interaction effects of the JDC and JDCS models, some studies in eastern cultural settings have focused on psychometric evaluations of the translated version of the Job Content Questionnaire (JCQ) (Karasek, 1985) and proved its applicability in different cultural settings. For example, studies have been carried out using a Chinese version (Cheng, Luh, Guo, 2003), Korean version (Eum et al., 2007), Malay version (Hadi, Naing, Daud & Nordin, 2006) and Thai version (Phakthongsuk, 2009).

Although three comprehensive reviews of JDC and JDCS studies (see de Lange et al., 2003; Hausser et al., 2010; van der Doef & Maes, 1999) were consistent on the findings related to additive and buffer effects, most of the previous studies applying JDC and JDCS were conducted in western countries, namely: the US (e.g. Snyder, Krauss, Chen, Finlinson & Huang, 2008; van Yperen & Hagedoorn, 2003); Australia (e.g. Macklin et al., 2006; Searle et al., 1999); and Europe (e.g. Pomaki & Anagnostopoulou, 2003; Rodriguez et al., 2001). A few studies have been conducted in eastern settings namely: Japan (Shimazu, Shimazu & Odahara, 2004); Taiwan (Wong & Lin, 2007); and Malaysia (Edimansyah, 2008; Huda et al., 2004).

In Liu and Spector's (2005) paper on international and cross-cultural studies, they report that previous research reveals that employees in individualistic countries reported higher levels of wellbeing than employees in collectivistic countries. In addition, Beehr and Glazer (2001) reported that culture influences both individuals and their work environment in ways that in turn influence the perceptions by individuals of the factors that have an impact on their wellbeing. Therefore, the current study investigates the JDCS variables as predictors of wellbeing to add to corpus of literature on the findings which are currently cumulative in western cultural settings. In other words, this study applies the JDC and the JDCS model to a study of Malaysian employees not only due to the rare investigation of these models in Malaysia, but to investigate it in a different cultural context. Therefore, the current study will address Xie's (1996) concern regarding the need to test Karasek's model in Geert Hofstede's (2009) category of a collectivist society.

In conclusion, a review of JDC and JDCS literature generally reveals similar patterns regarding the main, additive and interactive predictor contribution of JDC and JDCS variables as the extensive reviews by van der Doef and Maes (1999), de Lange et al. (2003) and Hausser et al. (2010). The current review demonstrates that psychological job demands, job control and social support are consistently found to be significant predictors of employee strain and wellbeing in the psychosocial environment. However, the review also notes that more research is needed to further validate JDC and JDCS models in Asian culture as Verhoeven et al. (2003) argue that the JDC and JDCS models are not comparable across countries and cultures. In particular, the current study, undertaken within the context of the collective culture of Malaysia, testing the JDC and JDCS models with the original variables together with organisational justice and work family conflict will provide useful information to further extend the applicability and generalizability of these models beyond western societies.

The research literature provides inconsistent and modest support for moderating predictor effects. Although the support for the moderating effect is weak, further investigation may be necessary in collectivist settings in order to rule out the buffering effects hypothesis. Such cross-cultural research would fill a gap in the literature and further validate the efficacy of the JDC and JDCS models. These minor limitations notwithstanding, both the JDC and JDCS models remain the most widely tested models for predicting employee strain and wellbeing.

2.5 Organisational Justice

Organisational justice refers to the role of fairness in the workplace and employees' perceptions regarding the treatment they have received in the workplace (Cropanzano et al., 2001; Moorman, 1991). Earlier research has described three types of justice in the workplace, namely distributive (Adams, 1965), procedural (Leventhal, 1980; Lind & Tyler, 1988; Thibaut & Walker, 1975; Tyler & Lind, 1992) and interactional (Bies & Moag, 1986; Moorman, 1991). This section discusses these types of justice in order to provide a basis for the understandings adopted for use in this thesis.

2.5.1 Distributive justice

Based on the initial work by Adams' (1965) on the equity theory of distributive justice, distributive justice explored the psychological processes involved in forming fairness judgments. This theory hypothesises that individuals are concerned about whether they receive fair outputs (e.g. pay, promotions and professional development) that are commensurate with inputs (e.g. effort and time) in comparison with the input and outcomes of other people in their workplace. For example, if employees find that they are being given less pay and promotions than their work colleagues for the same amount and quality of input, those employees will judge their work outcomes as unfair. Even though Adams' theory was regarded as the basis of organisational justice research, it also attracted several criticisms. For example, Leventhal (1980) pointed out that the emphasis on the uni-dimensional or single aspect of fairness, namely distributive justice, focused mainly on final output distribution and over-emphasised the importance of fairness in social relationships.

2.5.2 Procedural justice

Following the introduction of the theory of distributive justice, the focus of justice shifted from the evaluation of final outcomes to the allocation process by which the distribution of the outcomes was done (Leventhal, 1980; Thibaut & Walker, 1975). Thibaut and Walker (1975) focused on legal procedures in which disputants perceived procedural fairness as having the opportunity to voice their arguments. Based on these understandings, Lind and Tyler (1988) presented two models of justice: the self interest model where, in exercising voice over work procedures, individuals have the opportunity to influence outcomes; and the group-value model where individuals have the opportunity to voice their opinions in order to satisfy their desire to be heard.

However, in 1980, Leventhal extended the notion of procedural justice beyond the legal context of Thibaut and Walker (1975), by adopting a set of six rules including: (a) the consistency rule, in which procedures should be consistently applied to all people all the time; (b) the bias suppression rule, in which procedures were carried out without personal interest and were free from bias; (c) the accuracy rule, in which decisions were made based on gathered and accurate information; (d) the correctability rule, in which opportunities exist to revise inaccurate decisions; (e)

the representativeness rule in which allocation procedures must take into consideration the opinions of all people in the organisation who are affected by the implemented rules; and (f) the ethicality rule, in which designed procedures must be compatible with accepted moral and ethical values.

Research on procedural justice in organisations has been significantly influenced by Leventhal's (1980) work which employed a multi-conception theory of justice as an alternative to equity theory. However, similar to Adams' (1965) equity theory, procedural justice has not been free from criticism. Bies and Moag (1986) argued that organisational justice research mainly focused on the analysis of outcomes (distributive justice) and procedures (procedural justice) as the basis of justice judgments, however, both these groups of researchers failed to address the role of social interactions in justice judgments.

2.5.3 Interactional justice

As an alternative to distributive and procedural justice frameworks, Bies and Moag, (1986) established a third approach to organisational justice, that is, interactional justice. In this framework, Bies and Moag extended interaction factors such as communication which had not been a focus of previous justice research. Particularly, they argued that communication is significant in ensuring that the implementation of procedures is done properly. For example, interactive communication is important in order to ensure the effectiveness of performance appraisal procedures.

According to Bies and Moag (1986), interactional justice deals with "the quality of interpersonal treatment employees received during the enactment of organisational procedures" (p. 44). In two studies involving MBA job candidates, the results found four communication criteria or principles used to judge fairness, particularly in the context of the job search process: (a) truthfulness- the candidates expected the recruiter to be honest and avoid deception during the recruiting process; (b) respect in communication, referring to politeness and no rudeness; (c) propriety of questions, dealing with proper questions and avoiding discrimination or prejudicial statements; and (d) justification, referring to the expectation to receive a letter or statement explaining the reasons for not being recruited or for cancellation

of interviews. Among these four principles, truthfulness received the highest priority in judging fairness.

Based on the work of Bies and Moag (1986), Moorman (1991) developed the interactional justice items measuring the fairness interactions that accompany an organisation's formal procedures, focusing on the interpersonal behaviour of supervisors. For example, in their study involving two companies in the United States, respondents were asked whether the supervisor was considerate and kind, considered employees' rights and dealt with employees in a truthful manner (e.g. "Your supervisor treated you with kindness and consideration" and "Your supervisor took steps to deal with you in a truthful manner").

Criticism of the justice components were not confined to the distributive and procedural frameworks, but also directed at the interactional framework. Interactional justice received a critique as to whether it was an independent component of organisational justice or part of procedural justice (Cropanzano & Ambrose, 2001; Greenberg, 1993). Later, Bies, (2001) argued that interactional justice is a distinct component of procedural justice and explained that the concept is not confined to interpersonal treatment during the enactment of organisational justice, which is consistent with Moorman's (1991) work. In another study, Colquitt, Conlon, Wesson, Porter and Ng (2001) expanded the concept of interactional justice into two components: informational justice and interpersonal justice. Fujishiro (2005) stated that, although there were contradictory opinions (Bies, 2001; Bies & Moag, 1986; Cropanzano & Ambrose, 2001; Greenberg, 1993) on the status of interactional justice as an independent component of justice, it is beneficial to separate it as a third component of justice.

In accordance with the studies by Moorman (1991) and Fujishiro (2005) of organisational justice, this thesis adopts all three components of justice, namely, distributive, procedural and interactional justice in the context of Malaysian organisations, to represent overall justice in the workplace. Since the present study is conducted in a non-Western setting in the manufacturing sector, the overall findings should contribute to further understanding of the cross-cultural aspect of organisational justice as one of the reliable predictors of employee wellbeing. Since

the interactional justice concept has not been widely studied in Malaysian research, the present study focuses on the overall interactional components rather than distinguishing it as two parts. Reviewing the three components of justice in the literature, the current study adopts the summary of these components formulated by Cropanzano et al. (2001, p. 165) as follows:

Judgments regarding the fairness of outcomes or allocations have been termed “distributive justice.” Judgments regarding the fairness of process elements are termed “procedural justice,” and judgments regarding the fairness of interpersonal interactions are termed “interactional justice.”

2.6 Justice in the Workplace

The experience of justice in the workplace produces positive consequences as reported in previous studies (e.g. Colquitt et al., 2001; Fatt et al., 2010; Sutinen, Kivimäki, Elovainio & Virtanen, 2002). For example, an earlier study by Moorman (1991) involving 225 employees in two companies in the United States found that employees who perceived that they were fairly treated tended to possess positive attitudes towards their jobs, their job outcomes and their supervisors. In terms of organisational justice components, Moorman found that interactional justice is the easiest practice through which a supervisor or manager can enhance employees’ perception of fairness. On the other hand, both distributive and procedural justice frameworks are difficult to implement in ways that are consistent with those expected by employees. They might also be a constraint that is beyond either employer control or organisational policy.

A meta-analysis by Colquitt et al. (2001), involving 183 research articles on organisational justice in the workplace, found that organisational justice is a crucial aspect of managerial functioning which is associated with positive job outcomes including job satisfaction, organisational commitment and organisational citizenship behaviour. In addition, job satisfaction was found to be highly associated with procedural and distributive justice.

The success of properly administered organisational justice is related to not only work-related wellbeing including job satisfaction, but also improved employee health (Elovainio, Kivimäki & Vahtera, 2002; Kivimäki et al., 2004). For example,

Kivimaki et al. (2004) conducted a prospective cohort study involving 10,308 British civil servants and found there was a statistically significant association between perceived justice and health. After receiving improvement in organisational justice, male workers reported improved health compared to the baseline period.

Job satisfaction as a significant work outcome associated with organisational justice was evidenced not only in Colquitt et al.'s (2001) review of earlier studies from 1975 to 1999, but has continued to be confirmed in recent studies. For example, surveys such as that conducted by Fujishiro (2005), involving 357 employees of a furniture distribution company in the United States, have shown that supervision, management and wage fairness were significantly correlated with employee job satisfaction. Lindfors et al.'s (2007) study of 258 Finnish male anaesthesiologists also found that organisational justice was the most important predictor of job satisfaction.

The universality of organisational justice predicting employee wellbeing has been highlighted by previous studies (Findler et al., 2007; McFarlin & Sweeney; 1992; Zohar, 1995). Findler et al. (2007) carried out a study involving 250 Israeli employees and found that employees who perceived fair organisational process reported a higher sense of wellbeing. In a recent study of 160 correctional employees in the US, Lambert et al. (2010) confirmed that procedural justice has a positive relationship with life satisfaction. They reported few studies being conducted to investigate the relationship between justice and life satisfaction. Thus, the current study is among a few to date that incorporates justice and life satisfaction as dimensions of employee wellbeing. With Xie's (1996) recommendation for research in a collectivistic society in mind, the current study will investigate organisational justice as one of the predictors of Malaysian workers' wellbeing.

Numerous studies have confirmed the positive consequences of organisational justice on employee wellbeing but, as pointed out in Fujishiro's (2005) findings, although perceptions of fairness regarding supervisor and wages were associated with job satisfaction, they were not associated with employees' psychological wellbeing. She claimed that psychological wellbeing was not substantially affected by fairness in the workplace and suggested the need to consider

factors outside work, such as family matters. Thus, this study considers it is worth incorporating both work factors (psychosocial work environment and organisational justice) and non work issues (work family conflict) to predict employee wellbeing.

Organisational justice and its significance in employee wellbeing have not only been recognised by western scholars but are also of interest in research in Eastern settings. For example, two studies involving Malaysian workers found that reduced employee turnover intentions and job satisfaction were the outcomes of properly administered procedural and distributive justice among employees (Fatt et al., 2010; Hemdi & Nasurdin, 2008). Similarly, Yom's (2010) study, involving 274 nurses in general hospitals in Korea, found that all three components of justice (procedural, interactional and distributive) were influential in decreasing the intention of nurses to leave their organisations. In another study conducted by Bakshi, Kumar and Rani (2009), involving 128 medical college employees in India, results indicated that procedural and distributive justice significantly improve organisational commitment.

2.7 Impact of Injustice in the Workplace

The literature focuses on the important or positive outcomes of organisational justice as well as investigating the impact of injustice at the workplace. Numerous studies have been conducted which document the finding that perceived injustice has negative consequences for employees in an organisation and can be regarded as one kind of job stressor (Zohar, 1995). For example, Baron, Neuman and Geddes (1999) conducted a study involving 452 employees in both the public and private sectors in the US. They reported that the greater the employees' perception of injustice, the greater their tendency to act aggressively towards their supervisors and engage in various forms of aggressive behaviour. In another study, Krehbiel and Cropanzano (2000) conducted an experiment involving 210 undergraduate university students and found that perceived procedural injustice was associated with two negative emotions, anger and frustration.

Perceived organisational injustice not only causes aggressive behaviour and negative emotions, but affects psychological health and wellbeing. For example, Tepper (2001) found an interactive effect of unfair distributive and procedural justice

on employee psychological distress. Higher levels of employee psychological distress were seen when they experienced low distributive justice and unfair perceptions of procedural justice. Similarly, studies regarding the negative impact of perceived organisational injustice have been conducted involving Finnish employees (e.g. Elovainio, et al., 2002; Kivimaki et al., 2003). Elovainio et al. (2002) found that hospital employees who perceived low organisational justice were associated with poor self report, minor psychiatric disorders and increased levels of absenteeism. Similarly, Kivimaki et al. (2003) conducted a study among 3,773 employees in ten hospitals in Finland to examine the association between organisational justice and employee health. Their findings demonstrated the association between low procedural and relational justice and medically certified absence. Procedural justice is a stronger predictor of minor psychiatric morbidity and self rated health status than is relational justice. Kivimaki et al. found that employees appraised the outcomes of unjust procedural practices in the organisation as more significant with a substantial effect on health, when compared with the outcomes from unjust relational treatment by supervisors. A longitudinal study by Riolli and Savicki (2006), involving 103 engineering firm workers in the United States, found that employees who perceived lower procedural justice reported higher levels of burnout, strain and turnover. In both their first and second studies, procedural justice was a significant contributor to these negative outcomes.

Another job-related wellbeing concept that has been negatively associated with perceived injustice is job satisfaction and performance. For example, Schmitt and Dorfel's (1999) study supported the hypothesis that procedural injustice was negatively associated with job satisfaction and psychosomatic wellbeing among 295 Germany automobile employees. In later studies, Cortina and Magley (2003) and Lim and Cortina (2005) discussed interpersonal mistreatment in the workplace that affected employee wellbeing. In these cases, the mistreated employees received unjust performance appraisal, and were denied of promotion and pay increments because they had stood up to their employers. As a consequence of perceived injustice, these employees experienced negative outcomes including decreased job performance, low job satisfaction and psychological distress. Reviewing the impact of injustice, the literature positively suggests that perceived low levels of

organisational justice may act as occupational stressors which can affect employee wellbeing.

Generally, the studies reviewed above demonstrate the positive consequences of organisational justice, and the negative consequences of perceived injustice on employee wellbeing. However, there is a difference in terms of the significant effects of types of justice on employee wellbeing. For instance, McFarlin and Sweeney (1987), in their study of predictors of distributive and procedural justice on personal and organisational satisfaction, found that distributive justice was perceived as more significant in the satisfaction of employees than procedural justice. On the other hand, other findings reveal that procedural justice significantly predicted affective commitment, and was related to citizenship behaviour and job satisfaction involving employees in Taiwan (Chu, Lee, Hsu & Chen, 2005), China (Leung, Smith, Wang & Sun, 1996) and Korea (Yoon, 1996).

Lam, Schaubroeck and Aryee (2002) in their comparative study involving Hong Kong and US employees, found that procedural and distributive justice were more strongly related to job satisfaction, performance and absenteeism among employees in the United States than in Hong Kong. Based on their findings, they concluded that both procedural and distributive justice have a greater impact in cultures with small power distances, noting that the index of power distance for the United States is 40, whereas for Hong Kong it is 68. However, Pillai, Scandura and Williams (1999), in their study involving respondents from several countries including Australia, Colombia, India, Jordan, Saudi Arabia and United States, reported that both procedural and distributive justice have significant and similar effects on job satisfaction of employees across these countries. Although their study looked at a range of countries, the variances with the other countries represented above may be attributed to cultural differences. As the current study is conducted in Malaysia, a multicultural society, the findings might contribute to understanding the importance of organisational justice in yet another cultural context.

Incorporating organisational justice as a predictor in this study is a significant consideration. Organisational justice is an important predictor of wellbeing because previous research (Kivimaki et al., 2003) has shown that justice is a new independent

aspect of the psychosocial work environment that needs to be given priority in health and wellbeing promotion. Thus, the current study goes beyond prior research by giving priority to organisational justice as a new perspective that can promote employee health and wellbeing in Malaysia. Kivimaki et al. (2003) also state that in ensuring the wellness of employees, it is important to emphasize organisational justice aspects such as management procedures and how employees have been treated rather than focusing, as many previous studies have, on concerns related to the psychosocial work environment (job demands, job control and social support) and personality. In addition, most of the previous studies have mainly focused on organisational justice as the occupational stressor, and few have incorporated the moderator variables in the relationship between justice and its outcomes (e.g., Kausto et al., 2005).

Colquitt et al. (2001) suggested, in their meta-analysis of organisational justice research, that multiple justice dimensions should be considered for filling gaps in knowledge. However, subsequent studies have failed to consider their suggestion and have tended to focus only on the selected dimensions of procedural and relational justice (Sutinen, Kivimaki, Elovainio and Virtanen, 2002), distributive and procedural justice (Shamsuri, 2004) and relational components (Kivimaki et al., 2005). The current study measures three comprehensive aspects of justice: distributive, procedural and interactional justice, as suggested by Moorman (1991). It expands the previous organisational justice research in Malaysia (e.g. Hemdi & Nasuridin, 2008; Ismail et al., 2007; Ismail et al., 2008) which mainly focused on procedural and distributive justice. Furthermore, the outcome in this study is employee wellbeing measured not only through job satisfaction, the principal association with organisational justice (Colquitt et al., 2001), but also through some indicators such as life satisfaction with which it has rarely been associated (Lambert et al., 2010).

2.8 Moderators in the Organisational Justice Literature

The literature related to the importance of justice and its impact in the workplace generally focuses on the direct relationship between justice and job-related wellbeing such as job satisfaction, performance and health. Although most of the findings are corroborated in terms of the negative consequences of injustice on

employee wellbeing have led to suggestions for eliminating the sources of injustice, some commentators such as Greenberg (2004) observe that it is difficult or even impossible to entertain the interests of all employees working in the same organisation. If eliminating all sources of injustice in the workplace is beyond employer and organisational control, Rousseau et al. (2009) suggest that it is important to consider factors that might buffer stressors related to perceived low justice and wellbeing. In addition, Rousseau et al. state that examining the moderating effect on the relationship between organisational justice and health can expand the findings of previous studies which mostly focused on the direct relationship.

The majority of organisational justice studies focus on the main effect of justice on wellbeing and assess perceived low justice or injustice as an occupational stressor (Fujishiro, 2005), however, a few investigate the moderating effect (e.g. Elovainio, Kivimaki & Helkama, 2001; Kausto et al., 2005; Rousseau et al., 2009). For instance, in a study involving 1,443 Finnish workers, Kausto et al. (2005) found that perceived job insecurity moderated the association between procedural and interactional justice and employee wellbeing. Employees who perceived low justice and job insecurity reported low wellbeing. In another moderating effect study, Elovainio et al. (2001) surveyed 688 employees in Finland and tested the moderating effect of justice on job control and strain relationship. They reported that justice did not moderate the association between job control and workers' strain. In a more recent study, Rousseau et al. (2009) tested job control (work autonomy) and co-worker support as moderating variables in the relationship between organisational justice and psychological distress involving 248 prison employees in Canada. Their results supported the hypothesis that co-workers moderated the relationships between both procedural and distributive justice and psychological distress. However, job control only moderated the relationship between procedural justice and psychological distress.

Taking into account the possible buffering effect of moderator variables in the association between perceived low justice and employee wellbeing, the current study investigates two significant environmental factors (job control and social support) as postulated by Johnson and Hall, (1988), Karasek, (1979) and Karasek and

Theorell, (1990). The current study applied the JDC and JDCS models in the context of organisational justice, and these models have rarely been investigated in this context in Eastern societies, particularly in Malaysia. In addition, while the present research model was built on JDC and JDCS, it incorporates perceived low organisational justice as a job stressor alongside job demands and work family conflict, and includes employee wellbeing as a dependent variable. Most importantly, as the present study aims to predict employee wellbeing, these two moderator variables, namely job control and social support, are found to be relevant.

The current study takes the same approach as previous studies (Lawson et al., 2009; Lindfors et al., 2007; Rousseau et al., 2009), by adopting JDC (Karasek, 1979) and JDCS (Johnson & Hall, 1988; Karasek & Theorell, 1990) in an organisational justice study. However, this study contributes to knowledge in the field by investigating moderating effects which were not tested in the work of Lawson et al. (2009) and Lindfors et al. (2007) and expands the scope of social support in Rousseau et al. (2009)'s work by incorporating both supervisor and co-worker support as a moderator variable along with job control, in the context of Malaysian workers. Contrary to Rousseau et al. who focused on procedural and distributive justice, the focus of the current study is on three types of justice: procedural, distributive and interactional justice. Table 2.3 provides a summary of the different types of organisational justice measured in recent years in developed and developing countries. The majority of the previous studies have focused on a combination of either procedural and interactional or procedural and distributive types of justice.

Table 2. 3. Types of Organisational Justice Measured in Recent Research (2002-2010)

Authors	Sample	Types of justice		
		Proce.	Inter.	Dist.
Elovainio et al. (2002)	4,076 employees in Finland	✓	✓	
Lam et al. (2002)	218 Hong Kong and 185 the US bank employees	✓		✓
Elovainio, Kivimaki, Steen & Vahtera (2004)	2,969 hospital employees in Finland	✓	✓	
Kivimaki et al. (2004)	10,308 civil servants in London, United Kingdom		✓	
Barak and Levin (2002)	3,400 high-tech industry workers in Southern California, United States	✓	✓	✓
Rioli and Savicki (2006)	103 employees of a nationwide engineering firm in the US	✓		
Rousseau et al. (2009)	Correctional employees in Canada (326 at Time 1 and 249 at Time 2)	✓		✓
Chu et al. (2005)	392 nurses in Taichung Hospital, Taiwan	✓		✓
Ismail et al. (2007)	203 hotel employees in Sarawak, Malaysia	✓		
Ismail et al. (2008)	190 academic employees in a community college in Malaysia			✓
Hemdi & Nasurdin (2008)	380 hotel employees in Selangor, Kuala Lumpur and Pulau Pinang, Malaysia	✓		✓
Bakshi et al. (2009)	128 employees in a medical college, India	✓		✓
Fatt, et al. (2010)	300 employees in small and middle size companies in Klang Valley, Malaysia	✓		✓
Lambert et al. (2010)	160 staff at a security institution in the US	✓		✓
Yom (2010)	274 nurses in general hospitals in Incheon, Korea	✓	✓	✓

Source: Developed for this thesis from reviewed literature.

Notes: Proce. = Procedural justice; Inter. = Interactional justice; Dist. = Distributive justice

2.9 Work Family Conflict: Theoretical and Conceptual Foundations

Research on work and family issues originates from many disciplines including sociology, psychology, occupational health, management, gender and family studies (Geurts & Demeroutin, 2003). Poelmans (2001) reviewed work and family studies and identified the dominant and alternative theories. One of the dominant theories is role theory (Davis, 1996; Kahn, Wolfe, Quinn, Snoek & Rosenthal, 1964) through which work and family research is generally conceptualised. The contrasting hypotheses within role theory are scarcity hypothesis (Goode, 1960) and expansion hypothesis (Marks, 1977; Sieber, 1974). The role scarcity hypothesis suggests that “the individual may face different types of role demands and conflicts, which he/she feels as role strains when he/she wishes to carry out specific obligations” (Goode, 1960, p.484). Multiple roles cause individuals to experience role stress which has a detrimental effect on wellbeing. In his review, Poelmans (2001) concluded that work and family roles can cause conflict in three ways. Firstly, contradictory expectations in performing one’s roles result in intra-role conflict or role ambiguity. Secondly, performing multiple roles creates inter-role conflict whenever an individual faces difficulty in fulfilling another role. Thirdly, performing multiple roles results in feelings of overload in one or both of work family domains. Greenhaus and Beutell (1985) state that the scarcity model of human time and energy has been largely used in work family studies to explain the conflict relationship between the two central domains in human life: work and family.

The second hypothesis in role theory is expansion theory (Marks, 1977; Sieber 1974). According to this approach, engaging in multiple roles results in more positive than negative outcomes. Participation in multiple roles results in positive outcomes including role privileges, status security and personality enrichment (Sieber, 1974). With role privileges, the individual has a greater number of privileges due to engaging in greater number of roles; status security is afforded to people to compensate for failure in a particular role with another alternative role; and personality enrichment appears as a result of exposure to many sources of information, reduced boredom and the ability to tolerate divergent views. An alternative theory that might explain the benefit of engaging in multiple roles is the conservation of resources theory (Hobfoll, 1989). In work family studies, Grandey and Cropanzano (1999) were among the pioneers who applied this theory, which

expanded the direct relationships in role theory. The conservation of resources theory proposes that individuals experience stress as a result of having no resources (e.g. positive affect, self esteem) that could moderate conflicts and the outcome. According to Hassan et al. (2010), work family enrichment, facilitation, enhancement and positive spillover are among the terminologies used in work family studies that indicate the beneficial work family interaction.

Dobreva-Martinova, Villeneuve, Strickland and Matheson (2002) revisited role theory (Davis, 1996; Kahn et al., 1964) as a useful framework for understanding how holding different roles affects the wellbeing of individuals and organisational effectiveness. In the context of the current study, employees perform various roles related to work or non-work domains. Thus, the conflict that arises between the demands and expectations in performing different roles is regarded as a form of stressor which affects the employee wellbeing and organisational performance.

Although there are studies that do incorporate conflict and enrichment (e.g. McLean & Lindoff, 2000; Rothbard, 2001; Seng, Bujang & Ahmad, 2009), the focus of the current study is conflict as a result of engaging in multiple roles. In addition, role theory fits the JDCS model which tested the work family conflict variable as one of the negative predictors (stressors) (Poelmans, 2001) that are assumed to have an impact on the levels of employee wellbeing, particularly in the Malaysian context. The scope of the current study is on the conflict relationship between work and family domains, and not on the beneficial relationship between these domains as investigated in family enrichment studies (Seng et al., 2009; Hassan et al., 2010).

2.10 Work Family Conflict: Definitions and Overview

Work family conflict is defined as a form of inter-role conflict which occurs when an individual has to face incompatible role pressures from work and family (Greenhaus & Beutell, 1985 p. 77). There are two types of work family conflict which differ according to the direction of conflict: work interfering with family (WIF) conflict, and family interfering with work (FIW). Noor (2004) defines WIF conflict as occurring when work-related activities interfere with family responsibilities including when an employee tries to complete his/her office tasks at home, during time in which he/she should be with their family. FIW conflict occurs

in the opposite direction, such as when an employee needs to cancel a meeting due to child illness, thus disturbing the smooth execution of work demands.

Nonetheless, it is common to see other terms used to explain the two types of work family conflict in the work family literature. The interchangeable terms often used by scholars include work to family conflict (WFC) and family to work conflict (FWC) (e.g. Lingard & Francis, 2006; Rantanen, Pulkkinen & Kinnunen, 2005), work interference with family (WIF) and family interference with work (e.g. Byron, 2005; Kinnunen, Vermulst, Gerris & Makikangas, 2003), work home conflict (Emslie, Hunt & Macintyre, 2004) and work-family spillover and family-work spillover (Fanche et al., 2006). From this pool of interchangeable terms, the terms chosen for the current study are work to family conflict (WFC) to illustrate work interfering with family and family to work conflict (FWC) to illustrate family interfering with work. WFC and FWC are widely used in the work family literature, and are more direct and explicitly show the direction of conflicts.

The forms of work family conflict are: time, strain and behaviour-based (Carlson, Kacmar & Williams, 2000; Greenhaus & Beutell, 1985). According to Greenhaus and Beutel (1985) strain-based conflict occurs whenever the strain caused by one role influences the performance of another role, time-based conflict occurs when time devoted to one role inhibits the participation in another role, and behaviour-based conflict occurs whenever behavioural patterns that are incompatible with expectations are accepted. The present study focuses on the bidirectional conflict between WFC and FWC, assessing general demand and behaviour time and strain-based conceptualisations of conflict (Netemeyer, Boles & McMurrian, 1996) without differentiating between the three forms of conflict discussed by Carlson et al. (2000). Although numerous studies of WFC can be found in the literature (e.g. Kinnunen & Mauno, 1998; Fuss, Nübling, Hasselhorn, Schwappach & Rieger, 2008), Hassan et al. (2010) found that only a few studies in eastern cultures focused on bidirectional conflict. Thus, the present study aims to investigate both conflict directions as this approach explicitly represents the original bidirectional conceptualisation of WFC (Greenhaus & Beutell, 1985).

The impact of WFC issues on employees, family members and organisations has been widely researched in developed countries including the United States (Dilworth, 2004; Nielson, Carlson & Lankau, 2001; Parasuraman & Simmers, 2001), the United Kingdom (Emslie et al., 2004; Lewis, 2000), Australia and New Zealand (Bardoel, Cieri & Santos, 2008; O'Driscoll, Brough & Kaliath, 2004; Lingard & Francis, 2006) and Finland (Kinnunen & Mauno, 1998; Mauno, Kinnunen & Pyykko, 2005). Little, however, has been discussed in developing countries, particularly in Asia (Spector et al., 2004).

Thompson, Beauvais and Allen (2006) note that the issue of WFC has been of interest to Western organisational psychologists for the past 20 years. Undoubtedly, there is abundant literature dealing with western studies and findings. For example, WFC and FWC have been related to depression, poor physical health and heavy alcohol use among employed parents in the US (Frone, Russell & Barnes, 1996), and were found to have negative impacts on Finnish families and occupational wellbeing (Kinnunen & Maino, 1998). In a later study, Emslie et al. (2004) looked at 2,176 bank employees in the UK and found that work home conflict was strongly related to problematic physical symptoms, poor self health reports and psychological morbidity among men and women.

Concerns about the adverse impact of WFC on individual and family wellbeing along with societal impacts have gained increasing attention among Asian researchers as changing demographic patterns and economic globalisation have led to increasing numbers of women joining the workforce. For example, WFC has been found to be an essential issue in China and Taiwan (Yang, Chen, Choi & Zou, 2000; Lu et al., 2006), and (of particular relevance to this study) Malaysia (Ahmad, 1996; Noor, 2004; Hassan et al., 2010). As most work family conflict studies have been conducted in western countries including the United States, United Kingdom, Australia and New Zealand, it is uncertain whether those findings can be generalised to meet the increasingly recognised need for knowledge on this issue in other societies, especially eastern ones with differing cultural backgrounds (Hassan et al., 2010; Lu et al., 2006).

In their review of WFC in Asian countries, Hassan et al. (2010) found that most research has been conducted in cultures with Hindu values such as India (Aryee, Srinivas & Tan, 2005), and Buddhist and Confucian values such as Hong Kong (Aryee, Fields & Luk, 1999; Foley, Hang-Yue & Lui, 2005), China and Taiwan (Yang et al., 2000; Lu et al., 2006) and Singapore (Aryee, 1992; Skitmore & Ahmad, 2003). In contrast, only a few studies have investigated work family issues in Islamic countries: these few include studies in Iran (Karimi, 2008), Saudi Arabia (Mansour & Zin, 2008) and Malaysia (Noor, 2006). The current study focuses on WFC as one of the predictors of wellbeing among predominantly Muslim workers in Malaysia, and therefore aims to make a contribution towards filling the gap in this regard. In other words, the current study explores WFC in an Islamic context. As mentioned earlier, the majority of the Malaysian population is Muslim (61.3 percent) (Department of Statistics Malaysia, 2011), and the relevance of religious belief to work related wellbeing is a new but increasingly acknowledged paradigm.

There were inconsistencies in findings in work family conflict studies regarding gender. For example, previous findings reporting that women experience more work to family conflict than men (Duxbury, Higgins & Lee, 1994; Frone, Russell & Cooper, 1992; Gutek, Searle & Klepa, 1991; Nielson et al., 2001) were contradicted by the rational model of work family conflict which claimed that being involved for a greater time in one domain has a significant impact on that particular domain conflict. Thus, traditionally, women spend more time on family matters, so they were expected to experience higher family to work conflict compared to men (Kinnunen & Mauno, 1998), while men tend to experience higher work to family conflict due to significant involvement in work matters. However, findings that claimed women experienced higher work to family conflict were in line with the socio-cultural expectation theory that explains that the time that individuals spend in the domain of the opposite sex has more influence on perceptions towards work family conflict (Gutek et al., 1991).

In their review of work life studies in Australia and New Zealand, Bardoel et al. (2008) found that the majority of studies have focused on women. Although several studies established that women experienced more WFC than men (Frone et al., 1992; Willimans & Alliger, 1994), Parasuraman and Simmers (2001) found that

higher levels of WFC were being experienced by men than women. However, Hill (2005) stated that the experience of WFC by working fathers has rarely been investigated by work family researchers. On the other hand, a few studies have found no significant difference between genders in experiencing WFC (Duxbury & Higgins, 1991; Kinnunen & Mauno, 1998; Pal & Saksvik, 2006).

Previous research exploring WFC in Malaysia has not taken male employees into consideration (Chew Yee Gan, Samaratunge & Smith, 2001; Noor, 1999; 2002; 2006; Samad, 2006). Since WFC is an issue involving both men and women (Noor, 2002; Hassam et al., 2010), the current study includes both genders. In addition, most of the studies of WFC in Malaysia have only been carried out among professionals (Ahmad, 1996), accountants (Nasurdin & Hsia, 2008), professional-academic and secretarial-clerical employees (Noor, 1999; 2002) and medical officers (Razak, Omar & Yunus, 2010), whereas the present study focuses on the manufacturing sector including a heterogeneous mixture of respondents comprised of assembly workers, supervisors and managers from different socio-economical backgrounds. Focusing on the effects of work family conflict on Malaysian workers can make a significant contribution to policy makers as the seventh challenge of Malaysian Vision 2020 is to:

establish a fully caring society and a caring culture, a social system in which society will come before self, in which the welfare of the people will revolve not around the state or the individual but around a strong and resilient family system (Mohamad, 1993, p. 405).

2.11 Empirical Studies on WFC and Its Outcomes

WFC not only impacts on the individual, but also on organisations. This is established in studies conducted in both western and eastern countries. This section discusses the impact of WFC on both individual and organisational outcomes.

2.11.1 Individual outcomes

WFC has been found to be a longitudinal predictor of employee wellbeing and a negative predictor of psychological wellbeing (Brough & O'Driscoll, 2005; Grant-Vallone & Donaldson, 2001) and also found to affect all types of employees regardless of gender, ethnicity, and marital and parental status. A study in New

Zealand was consistent in finding that individuals report higher levels of WFC than FWC (O'Driscoll et al., 2004). In addition, understanding the combined dynamics of work and non-work life is essential to accurately evaluate work-related psychological wellbeing (Brough & O'Driscoll, 2005; O'Driscoll et al., 2004). Research by Kinnunen et al. (2003) involving 296 full-time employed fathers in the Netherlands found that WFC was strongly associated with workers' job exhaustion, and FWC was associated with a negative family climate and marital dissatisfaction. A serious impact of WFC was been found in a study by Ross, Lahelma and Rahkonen (2006), involving 4,228 women and 1,043 men in Finland. Their findings reported that WFC was strongly related to problem drinking, and particularly 'heavy drinking' by women. In more recent studies involving German and Italian workers, results indicated that WFC was significantly associated with higher rates of personal burnout, behavioural and cognitive stress symptoms (Fuß et al., 2008) and decreased job satisfaction (Cortese, Colombo & Ghislieri, 2010).

Research in East Asian countries reveals similar results to those in Western countries in terms of the negative impact of WFC. For example, Aryee (1992) examined the outcome of WFC among 354 professional women in Singapore. Three types of WFC, namely job-spouse, job-parent and job-homemaker were discussed. Although moderate levels of conflict were found for each type, their results supported a negative correlation between job-spouse and job-parent conflicts and life satisfaction. In another study, in Hong Kong, Aryee et al. (1999) established that the life satisfaction of married Hong Kong employees was influenced by WFC. Job-parent conflict was also found to negatively predict the work quality of employees. Corroborating with Aryee's (1992) finding, a correlation between conflicts and life satisfaction was found in Kim and Ling's (2001) study involving 102 married Singaporean women entrepreneurs, in which WFC decreased satisfaction with work, marriage and life. A recent study, involving 466 employees in China by Yu, Lee and Tsai (2010), found that WFC increases the experience of emotional exhaustion. Comparing eastern WFC with western WFC, Spector et al. (2004) surveyed 2,487 managers representing three culturally distinct regions: Anglo (Australia, Canada, England, New Zealand and the U.S), China (Hong Kong, China and Taiwan) and Latin America (Argentina, Brazil, Colombia, Ecuador, Mexico, Peru, and Uruguay). Their results found that work family stressors negatively relating to job satisfaction

and employee wellbeing were particularly high among Chinese women who experienced more work family distress and lower mental and physical wellbeing than others.

Although there is agreement on the adverse impact of WFC on employee wellbeing (mainly focused on job satisfaction) in most East Asian studies, a few studies revealed contradictory findings. For example, Aryee and Luk (1996) surveyed 207 dual earner couples, and their results indicated that there was non-significant correlation between WFC and career satisfaction. Similarly, a later study by Aryee, et al. (1999) found that a nonsignificant relationship existed between WFC and job satisfaction. Both studies were conducted involving Hong Kong employees. The inconsistencies in the findings might be due to cultural differences in the workers' perceptions of work and family matters (Aryee et al., 1999). Thus, Foley et al. (2005) stated that it is crucial to investigate WFC and FWC in non-western societies, as this will significantly enrich cross-cultural literature on work family conflict. In summary, unbalanced work family relationships have been found to be a severe work stressor that affects employee wellbeing, and therefore, requires more attention (Siu, Spector, Cooper & Lu, 2005; Spector et al., 2004).

2.11.2 Organisational outcomes

Numerous studies have linked WFC to negative consequences which can affect the productivity and performance of organisations. For instance, Chapman, Ingersoll-Dayton and Neal (1994) discussed the effects of occupying multiple roles on employees of companies in Portland, Oregon. Their findings showed that, among 9,573 employees, women with multiple responsibilities at home were particularly associated with increased absenteeism and stress. They were likely to arrive late at the workplace, leave earlier, and to be frequently disrupted by family matters. Likewise, Hammer, Bauer and Grandey (2003) conducted a study among 359 dual earner couples in the United States, in which wives' lateness to work was related to WFC, and husbands' absenteeism to FWC. In another study, Clays, Kittel, Godin, de Bacquer and de Backer (2009) implicated FWC with high levels of sickness absence in both men and women but found no evidence for a link between WFC and absenteeism.

WFC not only causes high levels of absenteeism, but negatively affects work performance. Frone, Yardley and Markel's (1997) study of 372 Canadian employees found that FWC was negatively related to work performance. Their findings suggested that, if an individual's obligation at work is frequently interfered with by family matters, their performance at work will be disrupted. Similarly, a survey conducted by Roth and David (2009), with 136 employees of a wholesale distribution firm in the US, confirmed that WFC has a negative impact on group performance at work. In a study looking at WFC and the organisational citizenship behavior of 203 teachers in New Jersey and New York, Bragger, Rodriguez-Srednicki, Kutcher, Indoviro and Rosner (2005) found teachers who experienced a high level of work family conflict would engage in little organisational citizenship behaviour. They also established that parents had greater WFC than respondents without children.

WFC severely affects organisational wellbeing as it is implicated in employee turnover. Haar (2004) and Fuß et al. (2008) found that WFC was correlated with employees' intention to leave. In a hierarchical regression analysis by Haar, both WFC and FWC were significantly associated with turnover intention (22% and 8% of variance, respectively). In a qualitative study conducted by Mittal, Rosen and Leanna (2009), WFC relating to intention to leave was one of the major themes discussed in focus groups.

2.12 Moderators in the Work Family Literature

Research concerning WFC has generally focused on its direct effects on individual lives and organisational outcomes including WFC and wellbeing (Kinnunen & Mauno, 1998; Spector et al., 2004), WFC and morbidity (Emslie et al., 2004), and WFC and weak work performance (Frone et al., 1997). According to Mauno et al. (2006), some studies have investigated mediator and moderator variables in the relationship between WFC and its outcomes, focusing on personality variables as a moderator (Noor, 2002; Kinnunen et al., 2003; Rantanen et al., 2005). However, the effects of organisational-based resources moderating WFC are still under-researched (Mauno et al., 2006). Therefore, to assist in addressing this gap, the present study investigates job control and social support as moderators in the relationship between WFC and the wellbeing within Malaysians organisations.

2.12.1 Job control as a moderator

Even though job control has been widely used as a moderator variable in occupational stress research (e.g. Macklin et al., 2006; van Yperen & Hagedoorn, 2003), the use of job control as a moderator variable in WFC studies is still rare (Mauno et al., 2006). A study involving 1,252 employees in three different organisations in Finland, Mauno et al. (2006) found that job control moderated the adverse impact of WFC on organisational commitment and job satisfaction, but not on physical symptoms.

In contrast, a study conducted by Barich (1994), involving 161 employees in the United States, revealed a different finding. Although it found that job control predicts job satisfaction, as a moderator in the relationship between WFC and job satisfaction, it did not show any statistical moderating effect. In that study, the inclusion of job control in the regression analysis did not increase the amount of variance in explaining job satisfaction. In light of limited studies and inconsistent findings regarding job control as a moderator variable, the current study expands Mauno et al.'s (2006) research by examining job control as a moderator in the relationship between, not only WFC and wellbeing, but also between FWC and wellbeing.

2.12.2 Social support as a moderator

As well as job control, social support is another organisational resource included in the current study as a moderator variable. This aspect was explored by Nielson et al. (2001) in a study involving 502 employees working at a university in the United States. They researched the role of a mentor as a source of social support in reducing work family conflict, and found that having a mentor in the workplace lowered the levels of work family conflict, especially family to work conflict. A similar study in the United States by Erdwins, Buffardi, Casper and O'Brien (2001) involving 129 married women, found that socially supported women experienced lower levels of work family conflict than those who received less support. A longitudinal study in New Zealand, conducted by O'Driscoll et al. (2004) also corroborated the moderating effect of colleagues' support. They reported that support from colleagues moderated the negative impact of work to family interference on both psychological strain and family satisfaction. However, social support from

colleagues did not moderate work to family interference on physical health and job satisfaction.

The above findings contrast with other studies reporting no moderating effect of social support on work family conflict and its outcomes (Frone, Russell & Cooper, 1991; Parasuraman et al., 1992; Phelan et al., 1991). For example, Frone et al. (1991) examined the moderating effect of several psychosocial resources including social support. They found that social support did not moderate the relationship between work and the family stressors and the psychological distress of 1,616 household residents in New York. Likewise, Phelan et al. (1991) in their research, involving 1,523 married professional and managerial employees in the US, found that perceived social support did not give any beneficial effect to employees when dealing with the relationship between work family stressors and depression. In another study, Parasuraman et al. (1992) also reported that social support did not mitigate the work stressor, the work family conflict and family role stressor, and the wellbeing of 119 two career couples in the US.

As evident in the studies outlined above, many previous studies of work family conflict in western countries have involved married women or couples (e.g. Erdwins et al., 2001; Phelan et al., 1991). However, although spousal support is regarded as an aspect of social support in previous studies (e.g. Aryee et al., 1999; Erdwins et al., 2001, Matsui, Ohsawa & Onglatco, 1995; Parasuraman et al., 1992), it does not fit the nature of the respondents in the present study, who include both married and single employees. Furthermore, O'Driscoll et al. (2004) established that support in the workplace (co-worker support) moderated the relationship of WFC, with family support exhibiting direct effects rather than moderating effects. In a review of the social support literature, Bradley (2004) established that work sources of support, particularly from supervisors and co-workers, have a more significant effect upon work stressors than non-work sources of support. In this study, social support is derived from supports available in the workplace including both supervisors and co-workers (Brough & Pears, 2004; Macklin et al., 2006; Searle et al., 2001).

In addition to the lack of studies investigating job control and social support in WFC relationships, there is also a lack of research into the relationship between work family conflict and its outcomes. Although some studies have analysed the moderating effect of job control on the experience of WFC (Barich 1994; Mauno et al., 2006) and the moderating effect of social support on the experience of WFC (Lingard & Francis, 2006; O'Driscoll et al., 2004), no research to date has considered the simultaneous three-way interaction between WFC, job control and social support.

The following sections discuss several predictors of employee wellbeing; psychosocial work environment, organisational justice and work family conflict.

2.13 Research Model

The integrative framework proposed in the research model (see Figure 2.4) represent predictor variables of the psychosocial work environment (job demands, job control and social support), organisational justice (procedural, interactional and distributive justice) and work family conflict (WFC and FWC) on the criterion variable (employee wellbeing). Employee wellbeing was measured by several indicators, namely, job satisfaction, job affective wellbeing, life satisfaction, positive affect, negative affect and psychological wellbeing. The current study adopted the JDC and JDCS models in testing the additive and main effect predictors on wellbeing. Since there is little discussion on investigating the combination of JDCS variables with work and non-work domain (Loretto et al. (2005), the current study tests the applicability of the JDC and JDCS not only on its original variables, but with justice and work family conflict. In addition, job control and social support act as moderator variables that moderate the effect of predictor variables on the criterion variables.

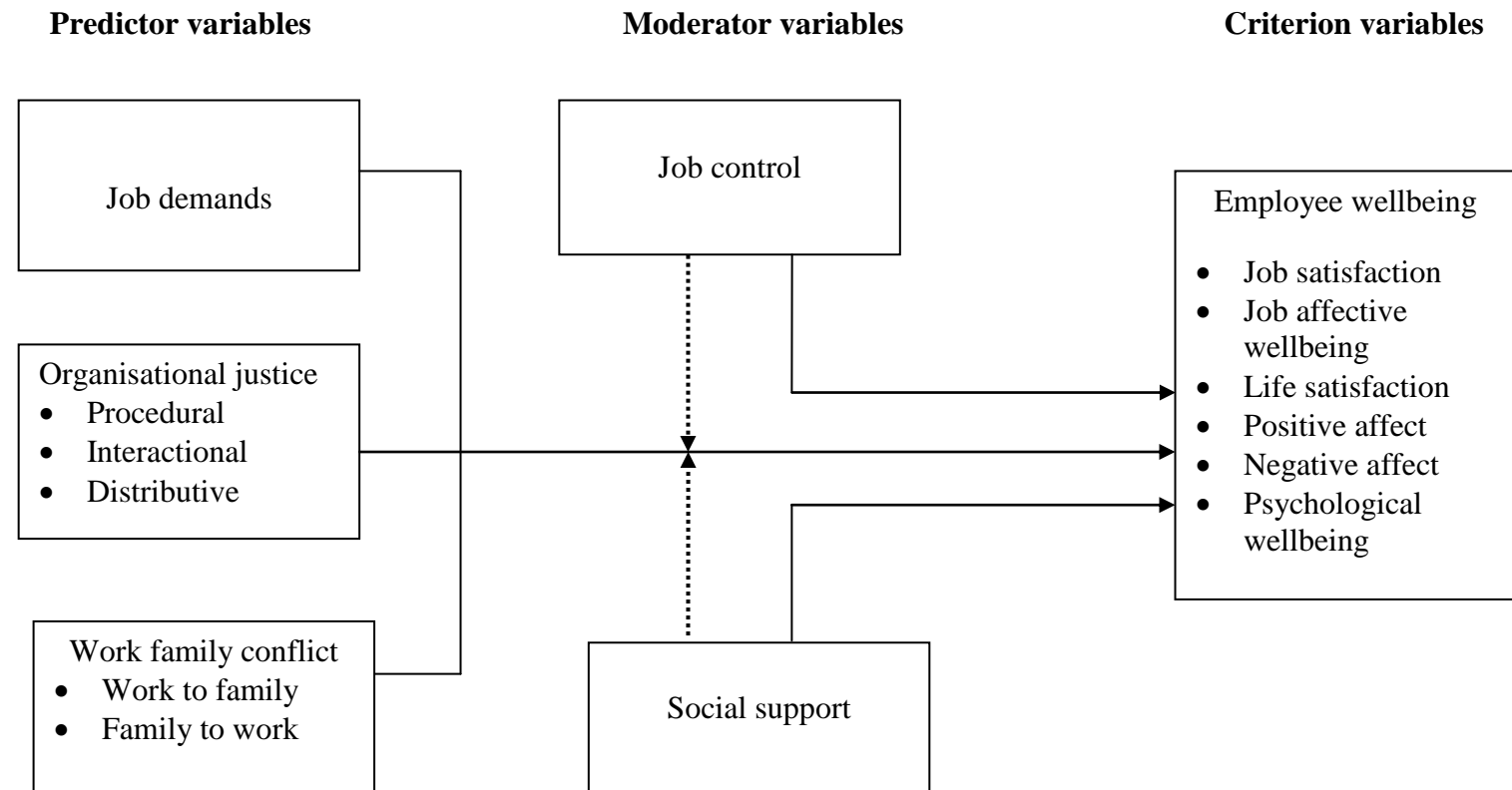


Figure 2.4. Research model

Note:

—————▶ Indicates main effect

.....▶ Indicates moderating effect

In addition to the main effect of the predictor variables on levels of employee wellbeing, the present study investigates the roles of job control and social support as the moderator variables. Specific research questions are:

RQ1: Do psychosocial work environments (job demands, job control and social support), organisational justice (procedural, interactional, and distributive justice) and work family conflict (WFC and FWC) together predict employee wellbeing?

The current study investigates whether JDCS variables, organisational justice (procedural, interactional, and distributive) and work family conflict (WFC and FWC) combine additively to predict employee wellbeing. In literature to date, integration of all these variables as predictors is rarely investigated, particularly applying the JDC and JDCS models within organisational and work family studies.

RQ2: Do psychosocial work environments (job demands, job control, and social support) predict employee wellbeing as *independent predictors*?

Consistent with the JDCS model, the second research question investigates the association of the original JDCS variables with the levels of employee wellbeing in the context of Malaysia.

RQ3: Does organisational justice (procedural, interactional, and distributive justice) predict employee wellbeing as *independent predictors*?

Empirical findings indicate that organisational justice was associated with wellbeing (e.g. Findler et al., 2007; McFarlin & Sweeney, 1992; Zohar, 1995) and employees who perceived justice tended to report a higher level of wellbeing. Based on previous recommendations (Colquitt et al., 2001), the current study focuses on the association between three different dimensions of justice with employee wellbeing.

RQ4: Does work family conflict (WFC and FWC) predict employee wellbeing as *independent predictors*?

The current study addresses bi-directional work conflict (Hassan et al., 2010) as a significant predictor of employee wellbeing. Incorporating the non-work domain into the model provides a more comprehensive framework of wellbeing prediction.

RQ5: Does job control moderate the relationship between: job demands and employee wellbeing; organisational justice (procedural, interactional and distributive justice) and employee wellbeing; and work family conflict (WFC and FWC) and employee wellbeing?

Job control may be a moderator between high job demands, perceived low justice and high work family conflict, and levels of employee wellbeing. It is expected that employees who experience these stressors but perceive high job control will report high levels of employee wellbeing, compared to employees who perceived low job control. In other words, the association between these stressors and employee wellbeing depends on how the employee perceives control at work.

RQ6: Does social support moderate the relationship between: job demands and employee wellbeing; organisational justice (procedural, interactional, and distributive justice) and employee wellbeing; and work family conflict (WFC and FWC) and employee wellbeing?

Social support may act as a moderator variable in mitigating the negative consequences of high job demands, perceived low organisational justice and high work family conflict on the levels of employee wellbeing. That is, employees who enjoy high levels of social support are less likely to suffer from the negative impact of stressors.

An example of the expected two-way interaction between job demands and job control/social support on levels of employee wellbeing as investigated in RQ5 and RQ6 is presented in Figure 2.5.

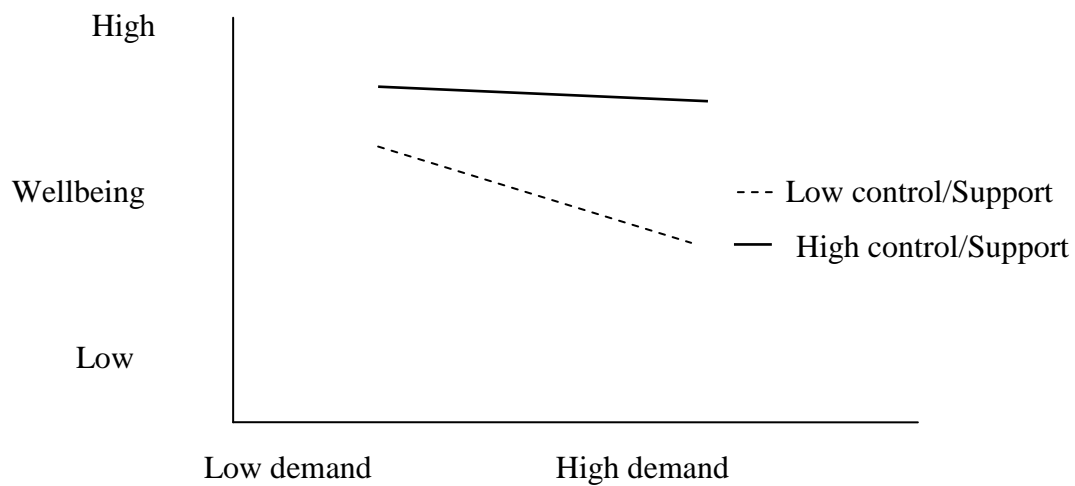


Figure 2.5. Expected two-way interaction between job demands and job control/social support (job demands x job control and job demands x social support) in predicting levels of employee wellbeing

RQ7: Does social support moderate the relationship between: high job demands and low job control, and employee wellbeing; perceived low organisational justice and low job control, and employee wellbeing; and high work family conflict and low job control, and employee wellbeing? (i.e., three-way interactive effects).

As the JDCS model postulates that social support moderates the effect of a high strain job (high job demands and low job control) on wellbeing, the current study investigates the three-way interaction between the original JDCS variables and also incorporates organisational justice and work family conflict. It is predicted that employees benefit more from high social support than low social support, particularly, those who are working in high strain jobs. In the context of this study a high strain job is characterized by: high job demands and low job control; perceived low organisational justice and low job control; and high work family conflict and low job control. The expected three-way interaction is illustrated in Figure 2.6.

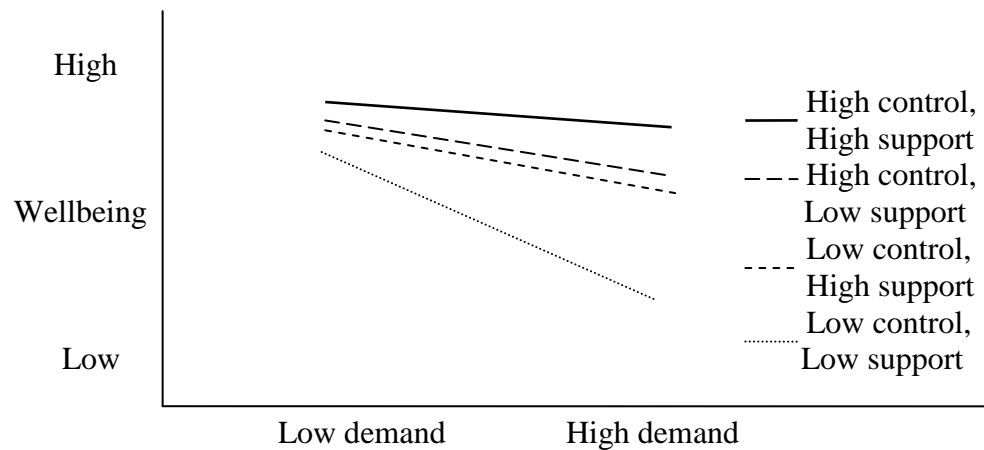


Figure 2.6. Expected three-way interaction between job demands, job control and social support (job demands x job control x social support) in predicting levels of employee wellbeing

2.14 Addressing the Gaps in Literature

In reviewing the literature related to the factors that predict employee wellbeing in both western and eastern contexts, the present study addresses gaps and contributes to the corpus of literature in the following ways:

1. The generalisability of the research findings has been supported by the gathering of data from 10 organisations. The sample is drawn from the manufacturing sector in Malaysia and includes different types of manufacturing groups and different occupational levels focusing on assembly workers, supervisors and managers. This is significant as most studies on employee wellbeing in Malaysia have mainly been carried out among professional (Ahmad, 1996), professional-academic and secretarial-clerical female workers (Noor, 1999; 2002). Thus, in accordance with the recommendations of Sparks et al., (2001), the present study addresses subordinate and blue collar workers.
2. Research to date has separately investigated three major variables: JDCS, organisational justice and work family conflict. However, there has been little discussion of two combinations of the variables: work family conflict and the psychosocial work environment (Pal & Saksvik, 2008); and the psychosocial work environment and organisational justice (Lawson et al., 2009). However,

in accordance with the suggestion of Loretto et al. (2005), the current study incorporates additional work variables (organisational justice) and the non-work domain (work family conflict) with JDCS variables. Furthermore, Verhoeven et al. (2003) stated that investigating the JDCS variables in non-European countries would be worthwhile as the connotations of the concepts including control and social support might be perceived differently.

3. The current study tests the hypotheses of the JDCS model not only with its main variables, but including organisational justice and work family conflict in the Malaysian context. In addition, the current study investigates the interaction effect of job control and social support, which is inconclusive in most of western studies (van der Doef & Maes, 1999). The three-way interaction involving justice, job control and social support, and WFC, job control and social support remains under-researched, and the current study is among the first to test these complex interactions.
4. In the context of Malaysia, workers' wellbeing is examined from a positive standpoint and from a combination of both positive and negative standpoints. The positive standpoint involves a composite of workers' job satisfaction (Makikangas & Kinnunen, 2003; Noor, 2004), life satisfaction (Gallagher & Vella-Brodrick, 2007; Noor, 2006) and psychological wellbeing (Fujishiro, 2005; Noor, 2002). The combination of both positive and negative standpoints involves: job affective wellbeing (Daniels, 2000); and positive and negative affect (Gallagher & Vella-Brodrick, 2007; Noor, 2006). To the best of the author's knowledge, previous research has not yet applied these composite wellbeing measures, and the current research aims to help fill this gap to better understand the diverse aspects of wellbeing.
5. Research on predicting employee wellbeing within the Malaysian context is significantly lacking. Most studies have been conducted in western countries such as the UK, US and Australia. It is important to examine whether the findings of western research could be generalised to the Malaysian setting which is different in socio-culture context. Furthermore, Suhail and Chaudhry (2004) assert that it is difficult to determine the predictors of wellbeing due

its diverse and extensive criterion. They also state that wellbeing studies are underrepresented in eastern culture.

2.15 Chapter Summary

This chapter has presented a review of the related literature as a basis for building a research model for the prediction of employee wellbeing in the context of Malaysia. The review of the literature on the three predictor variables, namely psychosocial work environment (job demands, job control and social support), organisational justice (procedural, interactional and distributive justice) and work family conflict (WFC and FWC) suggests that incorporating both work and non-work domains provides a more comprehensive research framework. Building upon the JDC and JDCS models as the theoretical grounding, the current study provides to the corpus of literature the prediction model of wellbeing in the context of collectivist Malaysian employees. The following Chapter 3 outlines the details of the research methodology adopted in this study.

CHAPTER 3: RESEARCH METHODOLOGY

3.1 Introduction

This chapter provides the overview of the research methodology adopted in this study in order to gather the appropriate data to examine the study's conceptual framework and test its hypotheses. Discussion in this chapter begins with an overview of the research design and identification of participants. Subsequently, the measurement of the variables, pre-test of the questionnaire and the pilot study and procedures are explained. It also provides an overview of the methods of data analysis and of the ethical considerations in dealing with human research participants.

3.2 Research Design

Research design refers to the overall plan or structure which governs the conduct of a entire study until all its hypotheses have been tested (Shaughnessy, Zechmesister & Zechmeister, 2008). The present study investigates the effects of predictor variables (psychosocial work environment, organisational justice and work family conflict) on the criterion variable (employee wellbeing). This study takes a quantitative research approach that involves the use of survey questionnaires in collecting the data. Previous studies on wellbeing (Escriba-Aguir & Tenias-Burillo, 2004; Loretto et al., 2005) also have been conducted quantitatively and used the survey method. Justifications for the choice of the survey method in the current study are as follows:

- a. A survey is appropriate for a study that consist of self-reported belief or behaviour research questions (Neuman, 1997). In this study, the survey method is considered to be appropriate because the information required from the respondents is related to their perceptions of the factors that have an impact on their wellbeing.
- b. Survey is also regarded as the best method for social researchers to collect data from a large population (Babbie, 2007).
- c. Personally administering questionnaires to respondents provides the opportunity for immediate clarification for respondents and increases the response rate (Sekaran, 2003).

- d. Through a survey, a researcher has the opportunity to introduce the research topic. Respondents are more motivated as they have to deal with paper and pencil rather than face the interviewer directly (Sekaran, 2003).
- e. A survey can provide higher levels of anonymity to respondents as they do not have to reveal their identity (Sekaran, 2003). In this study, respondents do not have to reveal their identity as they only need to provide general demographic information, including sex, marital status, age and ethnic groups.

The present study employed a cross-sectional research design and the data collection was conducted within a particularly short timeframe. Cross-sectional studies collect information which represents what is going on at only one point in time (Shaughnessy et al., 2008). Cross-sectional design is opposite to longitudinal design which deals with data collection involving the same respondents at different time intervals. The current study adopts a cross-sectional design due to time constraints and due to the nature of this study in particular the fact that it did not aim to reveal the causal pattern of relationships between the investigated variables. Details of the flow of research design in the current study are presented in Figure 3.1.

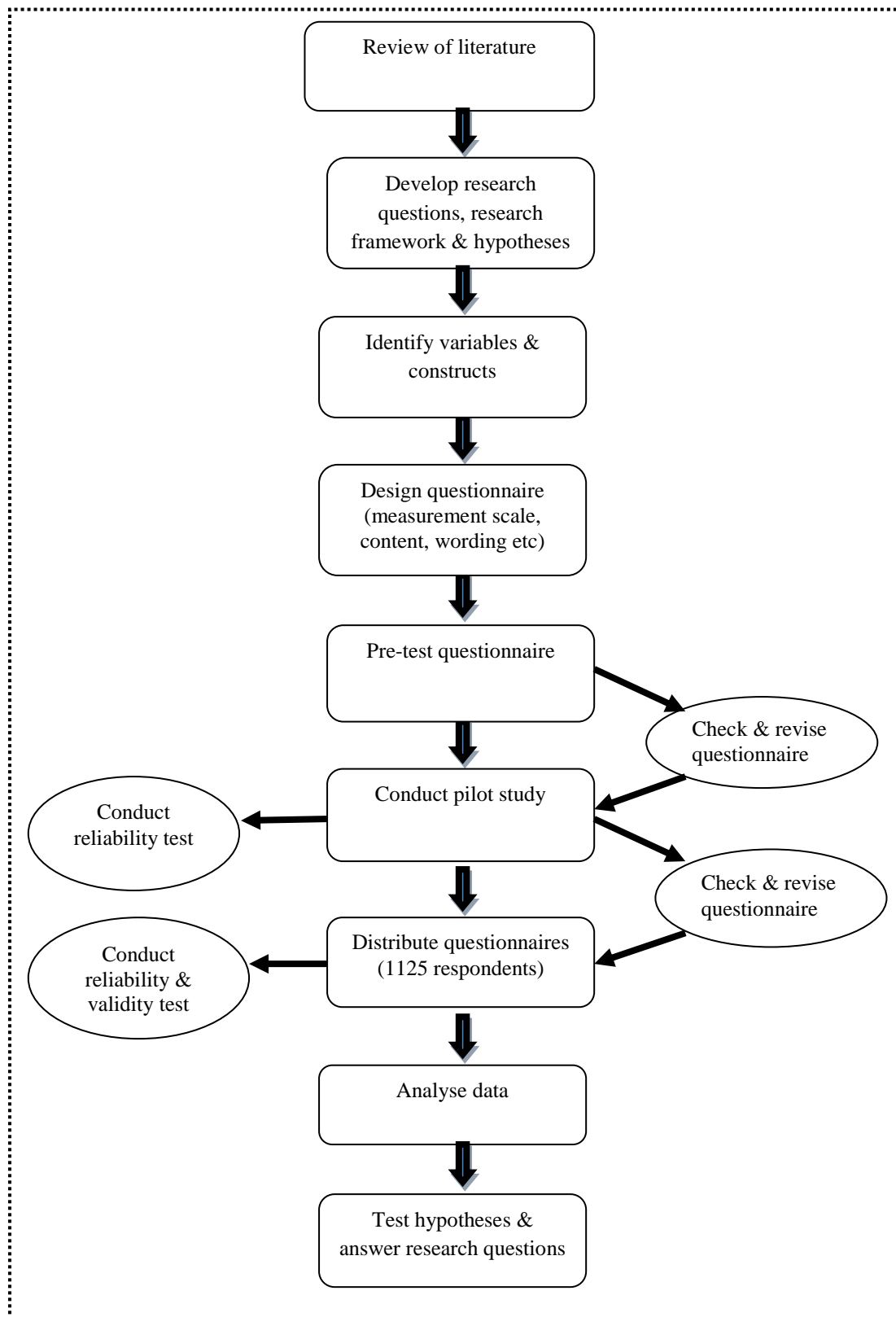


Figure 3. 1. Summary of research design developed for this study

3.3 Participants

The current study involved Malaysian workers (assembly workers, supervisors and managers) from manufacturing companies situated on the East Coast (Terengganu and Pahang) and West Coast (Selangor, Johor, Negeri Sembilan, Melaka and Kedah) of Peninsula Malaysia. These three job categories represent the dominant positions in the manufacturing sector, with the general proportion of assembly workers, supervisors and managers at 3:2:1, respectively. These are the groups of employees who play the critical roles in their organisations (De La Rosa, 2008). No respondents were selected from East Malaysia (Sabah and Sarawak) due to constraints in terms of time, finance and distance. More companies situated on the West Coast of Peninsula Malaysia are involved in this study because the Peninsula is more developed in the west and more manufacturing companies are situated in that region.

Most of the companies involved in the current study were registered with the Federation of Malaysian Manufacturers (FMM). Specifically, organisations which have been categorised as large enterprises (companies with more than 500 employees) are involved in this study. Names and contact details of manufacturing companies for the study were obtained from the Federation of Malaysian Manufacturers Directory 2008 as well as through the company's websites. The justification of the selection of this industry as the main target is based on the Labour Force Survey, Department of Statistics Malaysia (2008), which reported that the manufacturing industry workforce contributed eighteen (18) to twenty-two (22) percent of the total workforce in Malaysia between 2002 and 2007.

In terms of sample size, Tabachnick and Fidell (2007) propose simple rules to determine a sample size: namely, $N \geq 50 + 8m$ (where m is the number of independent variables) for testing the multiple correlation, and $N \geq 104 + m$ for testing individual predictors (p.123). A more stringent rule proposed by Kline (2005) recommends that the acceptable ratio of cases to the number of parameters is 20:1; but no less than a minimum ratio of 10:1. Thus, in this study, approximately 400 employees are needed to participate to obtain relatively stable results. This number has also been guided by Krejcie and Morgan's (1970) sampling table adopted from Sekaran (2003). However, due to the availability of large numbers of manufacturing

workers in Malaysia, the target was to approach 1,500 respondents to be involved in the study.

Four months after commencing data collection, a total of 1,220 out of 1,950 distributed questionnaires had been returned (a 63% return rate). Seventy-three cases were dropped due to missing values involving main variables such as psychosocial work environment, organisational justice and/or work family conflict. After deleting the outliers, the final usable sample consisted of 1,125 respondents. Subsequent to data cleaning and screening, the frequency distributions were calculated and the demographic characteristics of respondents were presented regarding sex, age, race, marital status, education background, job position, employment status and years of service within the organisation. A summary of the respondents' demographic profiles is set out in Table 3.1).

Demographics: sex, age, ethnicity, marital status and number of children

The following section discusses the demographic data of respondents in the current study including their sex, age, ethnicity, marital status and number of children. In addition, education, appointment level, employment status and years of service are also presented.

Sex and Age group

As stated above, 1,125 respondents recruited from the Malaysian manufacturing sector participated in this study. A total of 536 male respondents (47.6 percent) and a total of 589 females (52.4 percent) constituted the sample in this study. The range of overall participant age was from 18 to 59 years. The age groups range from age 18 to 29 years ($n = 275$, 24.4 percent), between 30 and 39 years ($n = 519$, 46.1 percent), between 40 and 49 years ($n = 306$, 27.2 percent) and between 50 and 59 years ($n = 25$, 2.2 percent). Nearly half of the respondents were from the age group ranged from 30 to 39 years old. The smallest age group was older workers ($n = 25$) in the 50 to 59 age group.

Ethnic group

Of the 1,125 participants in the total sample, 943 respondents (83.8 percent) classified themselves as Malays. The second most numerous ethnic group is the

Chinese Malaysians followed by Indian Malaysians. However, in this study, there were 81 Chinese respondents (7.2 percent) and 92 Indian respondents (8.2 percent). Besides Malaysian citizens, the sample also included nine contract staff from Indonesia, Bangladesh and Myanmar (0.8 per cent) who were coded as *others*.

Marital status and number of children

Regarding marital status, 837 respondents (74.4 percent) were married, 254 (22.6 percent) were single, 22 (2.0 percent) were divorced and the remainder of the sample ($n = 12$, 1.1 percent) were widowed. A significant minority of respondents ($n = 331$, 29.4 percent) reported not having any children. This response includes all the respondents who were single. The remainder of the respondents reported having at least one child ($n = 140$, 12.4 percent) within a family and the maximum of five children and above ($n = 77$, 6.8 percent). Details of this aspect of respondents' profile are shown in Table 3.1.

Education

The respondents' educational background ranged from the minimum level, standard six (the highest primary school level), to the maximum level which is the achievement of a bachelor degree or above. Most of respondents ($n=509$, 45.2 percent) had completed a secondary school education: the Malaysian Certificate of Education (equivalent to completing Grade 12). This was followed by 175 respondents (15.6 percent) who had a bachelor degree and above, 164 (14.6 percent) who had a diploma (a three year course completed prior to a first degree), 130 (11.6 percent) who held a certificate (vocational or technical certificate), 128 (11.4 percent) who held the Malaysian Lower Certificate of Education (three years in high school) and 19 respondents (1.7 percent) who had completed their primary school studies to the highest grade (standard six).

Appointment level, employment status and years of service

Out of the 1,125 respondents, 486 (43.2 percent) were assembly or frontline workers, 404 (35.9 percent) were supervisors (e.g. foremen, team leaders), and 235 (20.9 percent) were employed at management levels. These three levels were the most prominent in the studied organisations. The expected practice in a Malaysian organisation is for employees with a bachelor degree or above to occupy

management positions. However, in certain circumstances, with vast professional experience and tenure, employees with less formal educational qualification are promoted to higher positions such as manager or head of department.

With regard to employment status, the respondents were divided into three groups: 1,057 respondents (94.0 per cent) were full-time permanent workers, 16 (1.4 percent) were temporary (serving a probation period before being eligible for permanent employment) and 52 (4.6 percent) were hired on a contract basis for a certain period of employment. In terms of job security, the majority of respondents were in secured positions.

Table 3. 1. Frequency of respondents' demographic characteristics

Characteristics	Frequency (N)	Percentage (%)
<i>Sex</i>		
Male	536	47.6
Female	589	52.4
<i>Age</i>		
18-29 years	275	24.4
30-39 years	519	46.1
40-49 years	306	27.2
50-59 years	25	2.2
<i>Race</i>		
Malay	943	83.8
Chinese	81	7.2
Indian	92	8.2
Others	9	0.8
<i>Marital Status</i>		
Married	837	74.4
Single	254	22.6
Divorced	22	2.0
Widowed	12	1.1
<i>Number of children</i>		
None	331	29.4
One child	140	12.4
Two children	215	19.1
Three children	242	21.5
Four children	120	10.7
Five children and above	77	6.8
<i>Education background</i>		
Standard 6 (Primary school)	19	1.7
Malaysian Lower Certificate of Education	128	11.4
Malaysian Certificate of Education	509	45.2
Certificate	130	11.6
Diploma	164	14.6
Degree and above	175	15.6

Table 3.1. (continued)
Frequency of respondents' demographic characteristics

Characteristics	Frequency (N)	Percentage (%)
<i>Position level</i>		
Management	235	20.9
Supervisory	404	35.9
Assembly	486	43.2
<i>Employment status</i>		
Permanent	1,057	94.0
Temporary	16	1.4
Contract	52	4.6

3.4 Measures

The original items of the questionnaire in English were translated into Malay and then translated back into English to check the integrity of the Malaysian translation. According to the guideline by Brislin (1970), the translation and back translation were carried out with the consultation with University Malaysia Terengganu academic staff (Psychology and Counselling, and Department of English) and staff from the Learning Support Services, Victoria University, Melbourne. After the original version was translated into the Malay language, the draft Malaysian questionnaires were administered to a group of 10 Malaysian employees in Melbourne to gain their feedback on clarity, understanding and relevance of the questionnaire items. After minor amendments to reflect their feedback, the Malay draft questionnaire was translated back into English independently by a bilingual academic.

The back translation was compared with the original English questionnaire (two English versions are compared) to ensure no translation errors changed the originally intended meaning. Any item whose meaning differed from that of the original item was translated again. None of the original items of the questionnaires were dropped. The contemporary Malaysian workforce is comprised of a modern generation who can converse and understand the Malay language, regardless of their ethnic background; however, the English version of the questionnaire was also available upon request. Previous studies in Malaysia (Edimansyah et al., 2008; Noor, 2002) have also used the Malay language version among workforce respondents.

Thus, the Malay language questionnaire produced in this study adequately caters for the needs of the research.

The survey instrument contains 10 sub-sections (Section A to Section I) which were measured by reference to scales in the literature. Section A asked about the demographic background of the respondent. As predictor variables, psychosocial work environment (Section B), organisational justice (Section C) and work family conflict (Section D) were measured. As wellbeing constructs, job satisfaction (Section E), job affective wellbeing (Section F) and life satisfaction (Section G) were assessed. In addition, positive and negative affect was measured in order to assess individual differences in affective responses (Section H), as well as an aspect of individual sense of wellbeing: psychological wellbeing (Section I). The English version originally used for creating the Malay language version of the questionnaire is given in Appendix A. The entire questionnaire in the Malay language (main instrument) is given in Appendix B. In addition to the reliability and validity of the questionnaires in the current study, the rationale for choosing these instruments are to replicate the appropriateness of standardised questionnaires that originated in the West (e.g. Job Content Questionnaire – Karasek (1985) and Job Satisfaction Survey – Spector (1997) with the current Malaysian sample.

3.4.1 Section A – Demographic information

The survey asked demographic questions related to sex, age group, ethnic background (Malay, Chinese, Indian or others), marital status (married, single, divorced or widowed), number of children, and education level (ranging from 1=Primary school, 2=the Malaysian Lower Certificate of Education, 3=the Malaysian Certificate of Education, 4=Certificate, 5=Diploma, or 6=Bachelor Degree and above. Demographic questions were also asked about levels of appointment (1=manager, 2=supervisor/team leader or 3=assembly workers) and employment status (1=permanent, 2=temporary or 3=contract basis). Four demographic variables were included as control variables. These variables were sex, age, ethnic background and marital status. These variables were chosen because they have been found to be related to wellbeing (e.g. Barak & Levin, 2002; Gilbreath & Benson, 2004; Latiffah, Nor Afiah & Shashikala, 2005; Stack & Eshleman, 1998).

3.4.2 Section B – Psychosocial work environment

Twenty-two items in the Job Content Questionnaire (JCQ) (Karasek, 1985), including the Malay version (Edimansyah, Rusli, Naing & Mazalifah, 2006) were used to measure psychosocial work environment constructs, namely, psychological job demands, job control or decision latitude and social supports, which were based on the Job Demand-Control-Support (JDCS) model. The JCQ is the most extensively used instrument for the measurement of the psychosocial work environment and has been translated into various languages (Hurrell, Nelson & Simmons, 1998). It is also a widely used workplace environment questionnaire and is now available in over 12 languages (Sale & Kerr, 2002).

This questionnaire measures five items of psychological demands derived from the core JCQ version (e.g. “I am free from conflicting demands that others make”). Job control, also called decision latitude, consists of nine items (e.g. “My job allows me to make a lot of decisions on my own”), and eight items of social support (e.g. “People I work with are competent in doing their jobs”). In March 2002, at the International Commission on Occupational Health Conference, the nine item scale of psychological demands which had been used in previous studies (e.g. Pelfrene et al., 2001) was no longer recommended (see “Scale and scoring,” n.d., para.4) due to factor loading and inverse associations with psychological strain outcomes. Items of JCQ were scored on a 4 point Likert-type scale, ranging from 1= strongly disagree to 4= strongly agree. Out of 22 items, 5 negative statements required reverse scoring. In the present study, Cronbach’s alpha coefficients were .51 for psychological demands, .68 for job control and .84 for social support. A low internal reliability for the psychological job demands scale is comparable with previous research literature in Asian settings (Cheng et al., 2003; Li, Yang, Liu, Xu & Cho, 2004).

3.4.3 Section C – Organisational justice

In this section, the measurement scale comprising components of organisational fairness, was adopted from Moorman (1991). This scale contains 18 items with 3 subscales: procedural (7 items), interactional (6 items) and distributive justice (5 items). The first subscale measures the extent to which managerial procedures suppress bias and promote consistency, accuracy, correctability,

representativeness, and ethicality (sample item: “Procedures are designed to hear the concerns of all those affected by the decision”). The second subscale indicates the quality of interpersonal behaviour of the supervisor, the degree of attention of the supervisor to the employee’s rights, and the truthfulness and trustfulness of the supervisor in dealing with the employees (sample item: “Your supervisor is able to suppress personal biases”). The final subscale assesses whether rewards are fairly distributed consistent with the employees’ responsibilities, experience, effort, work and strain (sample item: “Fairly rewarded in view of the amount of experience you have”). Respondents expressed their levels of agreement on a 5 point Likert-type scale ranging from 1= strongly disagree to 5= strongly agree to each statement. Higher scores on this subscale represent higher levels of perceived organisational justice. In the current study, internal consistencies of the subscales were between .84 and .93 which are consistent with studies by Elovainio, et al., (2002) and Elovainio et al. (2001) which indicated Cronbach’s alphas .90 and .81 respectively.

3.4.4 Section D –Work family conflict

Work family conflict was measured using the Work Family Conflict Scale (Netemeyer et al., 1996). This scale consists of two subscales: work to family conflict (WFC) and family to work conflict (FWC). There were 10 items measuring general demand, time and strain conflict. Respondents were asked to rate seven scales ranging from 1= strongly disagree to 7= strongly agree. An example of a WFC item is “The amount of time my job takes up makes it difficult to fulfill family responsibilities”, while a sample item of FWC item is “My home life interferes with my responsibilities at work such as getting to work on time, accomplishing daily tasks, and working overtime” The total score for each subscale ranged between 5 and 35, where the higher scores reflect greater perception of conflict.

In terms of internal consistency reliability of the scale, the present study indicated a Cronbach’s alpha coefficient of .92 for both WFC and FWC. The internal consistency reliability of this scale was further supported by previous studies (Frye & Breaugh, 2004; Fuß et al., 2008; Gudmundson, 2003; Lingard & Francis, 2006; Razak et al., 2010). Compared with other work family conflict scales, the scale developed by Netemeyer et al. (1996) shows stronger correlations between work family conflicts with job satisfaction, organisational commitment, job tension and

life satisfaction which support its potential predictive validity. Netemeyer et al. criticized the lack of sound measures of work family conflict and pointed out problems such as: the excessive length of the question items; the failure to distinguish concepts of work family conflict and family work conflict and the focus of the items on the outcomes rather than the domain of WFC and FWC.

3.4.5 Section E – Job satisfaction

Section E is the first of the five sections (along with Sections F, G, H and I) that comprise the indicators of employee wellbeing. Hart and Cooper (2001) stated that job satisfaction is one of the structures of occupational wellbeing and this study measured composite job satisfaction by using the Job Satisfaction Survey (JSS) developed by Spector (1997). Although the JSS was originally developed for use in human services in public and non-public organisations (Spector, 1985), it has been found suitable for general use including the education, manufacturing, medical and public and private sectors (Spector, 1997). In this study, 36 items were used to assess total job satisfaction, using 9 subscales (each consisting of 4 items). These included pay, promotion, supervision, fringe benefits, contingent rewards, operating conditions, coworkers, nature of work and communication. Respondents rated the favourable and unfavourable aspects of their jobs using a 6 point Likert-type scale ranging from 1= disagree very much to 6=agree very much. Respondents who agree with positively worded items (e.g. “I feel I am being paid a fair amount for the work I do”), and disagree with negatively worded items (e.g. “There is really too little chance for promotion on my job”) will have high scores on JSS, indicating higher levels of job satisfaction. There were 19 negative items requiring reverse scoring.

The total scores of 36 items, which also represent the total job satisfaction score can range from 36 to 216: the ranges are 36 to 108 for dissatisfaction, 144 to 216 for satisfaction, and between 108 and 144 for ambivalence (Spector, 1997). Evidence from previous studies (Bokti & Talib, 2009, Bruck, Allen & Spector, 2002; Spector, 1997) showed the internal consistency as .86, .91 and .90, respectively. Furthermore, a systematic review of job satisfaction instruments concluded that JSS was one of the seven instruments which met the criteria quality and that has an adequate reliability and construct validity (Saane, Sluiter, Verbeek & Frings-Dresen, 2003).

3.4.6 Section F – Job affective wellbeing

This section measured the frequent experience of positive affects and infrequent experience of negative affects related to the work domain using affective wellbeing questionnaires adopted from Daniels (2000). The questionnaires included 30 statements representing five aspects of affective wellbeing: anxiety-comfort (A-C), depression-pleasure (D-P), bored-enthusiastic (B-E), tiredness-vigor (T-V), and angry-placid (A-P). Participants were asked to indicate frequencies of their feelings regarding the affects described in each statement in the past: “Thinking of the past week, how much of the time has your job made you feel each of the following?” on a scale ranging from 1= “You have never felt this way over the past week” to 6= “You have felt like this most of the time”.

An example of some of the items measuring job affective wellbeing is presented in Table 3.2. The entire questionnaire is given in Appendix A. All of the 15 statements expressing negative valence were reverse coded. In the present study, the Cronbach’s alphas were lower than the original study (Daniels, 2000). The present study’s Cronbach’s alphas ranged between .61 and .74; in line with the study by Rego and Cunha (2006) which reported internal consistency measures between .66 and .79. For the purpose of the current study, the composite score of 30 items was calculated so that higher scores represent higher levels of job affective wellbeing.

Table 3. 2. Measures of Job Affective Wellbeing

Thinking of the past week, how much of the time has your job made you feel each of the following?

You have never felt this way over the past week	1	2	3	4	5	6	You have felt like this most of the time
Anxious	1	2	3	4	5	6	
Worried	1	2	3	4	5	6	
Tense	1	2	3	4	5	6	
Relaxed	1	2	3	4	5	6	
Comfortable	1	2	3	4	5	6	

Source: Adopted from Daniels (2000)

3.4.7 Section G –Satisfaction with life

Section G of the questionnaire represents the measurement of cognitive judgment of the respondents' satisfaction with life. The Satisfaction with Life Scale (SWLS) was derived from Diener et al. (1985) and consists of 5 items. Respondents indicate their agreement or disagreement on a 7 point Likert-type scale ranging from 1= strongly disagree to 7= strongly agree. Higher scores indicate greater satisfaction.

The lowest scores range between 5 and 9, indicating extreme dissatisfaction. Scores ranging from 10 to 14 indicate dissatisfaction with life. Scores ranging between 15 and 19 indicate slight dissatisfaction with life. A middle score of 20 represents a neutral view. Scores ranging between 21 and 25 represent slight satisfaction with life. Scores ranging between 26 and 30 signify satisfaction with life and the highest score range between 31 to 35 shows extreme satisfaction with life. "If I could live over my life I would change almost nothing" is an example of a statement in this scale. Satisfaction with life measures a wellbeing psychological construct which is conceptually opposite to the dysphoric psychological state such as depression (Aryee et al., 1999) and synonymous with subjective wellbeing in the sense that individuals perceive their life favourably (Diener, 1984).

Research shows that this scale can be used with the general population and is appropriate for different age groups (Diener et al., 1985). Further, the scale moderately correlates with other subjective wellbeing measures such as the Affect Balance Scale (Bradburn, 1969). Cronbach's alpha was .83 in the present study which was similar to previous studies reporting internal consistencies of .84, .87 and .86, respectively (Aryee, et al., 1999; Diener et al., 1985; Noor, 2006).

3.4.8 Section H – Positive affect and negative affect

In order to complement the components of subjective wellbeing, this study included the Positive and Negative Affect Schedule (PANAS) developed by Watson et al. (1988) which measures general affective factors, positive affect (PA) and negative affect (NA). It is one of the top three well-known scales used to measure positive and negative affect (Steel, Schmidt & Shultz, 2008).

PANAS can be administered with a variety of time instructions such as “Indicate to what extent you feel this way right now, i.e. at the present moment, today, past few days, week, past few week, year or in general”. In the current study, respondents were asked to indicate the extent to which they felt certain affects during the past few weeks. This included 10 items of positive affect (e.g. excited and strong) and 10 items of negative affect (e.g. jittery and nervous), by using a 5 point Likert-type scale: 1= Not at all/very slightly, 2= A little, 3= Moderately, 4= Quite a bit and 5= Extremely.

Generally, the scores of positive and negative affect were calculated separately with higher scores indicating higher frequencies of respondents feeling positive affect and negative affect. Higher PA scores indicate better functioning, whereas higher scores of NA indicate lower functioning. Cronbach’s alpha coefficients were .84 (PA) and .87 (NA) in the present study which were comparable to previous studies. For example, Watson et al. (1988), in a study involving two groups of samples, reported the alpha coefficients were highly acceptable between .86 and .90 for PA and .84 and .87 for NA. Watson et al. concluded that PANAS was internally consistent and had excellent convergent and discriminant correlations with other measures. Similarly, Gallagher and Vella-Brodrick (2008) conducted a study among the general population and also reported high alpha coefficients of .88 for PA and .87 for NA.

3.4.9 Section I – Psychological wellbeing

Psychological wellbeing was one of the wellbeing dimensions used in this study and it has been measured by the Mental Health Continuum-Short Form (MHC-SF). Keyes (2005) developed the MHC-SF based on previous studies (Keyes, 1998; Ryff 1989). The 14 items of the MHC-SF consist of statements to which respondents indicate how often they felt a certain way during the past month. All the items use a six point scale ranging from (0) never, (1) once or twice, (2) about once a week, (3) about 2 or 3 times a week, (4) almost every day, to (5) everyday.

Included in the MHC-SF items were 3 emotional wellbeing items (e.g. “happy” and “interested in life”), 5 social wellbeing items (e.g. “... that you had something important to contribute to society”) and 6 psychological wellbeing items

(e.g. "... that you liked most parts of your personality"). These three dimensions also represented psychosocial wellbeing (Strumpher, Hardy, Villiers & Rigby, 2009). Since the current study investigated overall psychological wellbeing, the six psychological wellbeing subscale scores were summed to represent the most prototypical items in each dimension of psychological wellbeing (Ryff, 1989; Ryff & Keyes, 1995): autonomy, environmental mastery, personal growth, positive relations with others, purpose in life and self-acceptance.

Cronbach's alpha of psychological wellbeing dimension in the present study was .85 and the internal consistency for the overall scale was .89. Both measures of internal consistency were similar to those in the previous literature (Borja & Callahan, 2008; Keyes, 2005).

Overall, the researcher retained both the positive and negative wording of the items in the questionnaires. As Sekaran (2003) pointed out, "it is advisable to include some negatively worded questions as well, so the tendency in respondents to mechanically circle the points toward one end of the scale is minimized" (p.240).

Table 3. 3. Summary of research instruments

Instrument and variable	Source/relevant works	Scale/Sample questions	Interpretation of score
Job Content Questionnaire (JCQ) <ul style="list-style-type: none"> • Job demands • Job control • Social support 	Karasek (1985); Edimansyah et al. (2006)	4 point Likert-type scale e.g. “I’m free from conflicting demands that others make”; “My job allows me to make a lot of decisions on my own”; “People I work with are competent in their jobs”	Higher score indicates higher level of job demands, increased job control and social support
Organisational Justice Scale <ul style="list-style-type: none"> • Procedural • Interactional • Distributive 	Moorman (1991); Elovainio et al., (2002); Elovainio et al. (2001)	5 point Likert-type scale e.g. “Procedures are designed to hear the concerns....”; “Your supervisor is able to suppress personal biases”; “Fairly rewarded in view of the amount of experience you have”	Higher agreement shows higher levels of perceived organisational justice
Work Family Conflict Scale <ul style="list-style-type: none"> • WFC • FWC 	Netemeyer et al. (1996); Gudmundson, (2003); Frye & Breugh (2004); Fuß et al. (2008); Razak et al. (2010)	7 point Likert-type scale e.g. “The amount of time my job takes up makes it difficult....”; “My home life interferes with my responsibilities at work such as....”	Higher scores reflect greater perception of conflict
Job Satisfaction Survey (JSS)	Spector (1985,1997) Bokti and Talib (2009); Bruck et al. (2002)	6 point Likert-type scale e.g. “ I feel I am being paid amount for the work I do”	Higher scores indicate higher levels of job satisfaction
Affective Well-being Questionnaire	Daniels (2000); Rego and Cunha (2006)	6 point Likert-type scale e.g. “Thinking of the past week,... your job made you feel each of the following? Anxious, worried, tense, etc.	High scores represent high levels of job affective wellbeing

Table 3.3. (continued)
Summary of research instruments

Instrument and variable	Source/relevant works	Scale/Sample questions	Interpretation of score
Satisfaction with Life Scale (SWLS)	Diener et al (1985); Aryee et al. (1999); Noor (2006)	7 point Likert-type scale e.g. “If I could live over my life I would change almost nothing”	Higher scores indicate greater in life satisfaction
Positive Affect Negative Affect (PANAS) <ul style="list-style-type: none"> • Positive affect (PA) • Negative affect (NA) 	Watson et al. (1988); Gallagher and Vella-Brodrick (2008)	5 point Likert-type scale e.g. “Indicate to what extent you feel this way” -excited, strong, etc -jittery, nervous, etc	Higher scores of PA indicate better functioning and higher scores of NA indicate lower functioning.
Mental Health Continuum Short Form (MHC S-F) <ul style="list-style-type: none"> • Psychological wellbeing 	Keyes (1998; 2005); Borja & Callahan (2008); Ryff (1989)	6 point Likert-type scale e.g. “ that you liked most parts of your personality”	Higher scores indicate higher levels of psychological wellbeing

3.5 Pre-testing Questionnaires and Pilot Study

Since the current study was conducted in Malaysia where the national language is the Malay language, all measures were translated from English to Malay by the researcher. Then, the translated questionnaires in Malay were translated back into English by independent bilingual translators. The translation and back translation were carried out in consultation with University Malaysia Terengganu academic staff (one from the Department of Psychology and Counselling and one from the English Department). In addition, the researcher worked with staff from the Learning Support Services, Victoria University, Melbourne in order to check the compatibility between the original English questionnaire with the back translation version.

Subsequently, pre-testing of the questionnaires in the Malay language was conducted among friends and acquaintances who volunteered from the Malay community in Melbourne, Australia. Their feedback was used to ensure that no

errors or oversights of problems were left in the draft questionnaire before starting the fieldwork in Malaysia (see Alreck & Settle, 1995; Baker, 2003 for the use of a similar procedure).

Incorporating the pre-testing exercise, the present study pre-tested the questionnaires with a lecturer from the Department of Psychology and Counselling, University Malaysia Terengganu, Human Resource Managers in organisations that gave consent for the researcher to approach their employees, doctoral students from the Victoria University and a group of ten Malaysian employees in Melbourne. To explain the background of this research project for evaluators, the volunteer evaluators involved in the pre-testing exercise were provided with a brief outline of the research proposal (e.g. research objectives and research questions) which assisted them to evaluate clarity, readability and relevancy of the items and statements in the Malaysian language questionnaire.

In general, the feedback included queries regarding the clarity of items or sentences, which needed paraphrasing or restructuring. Further, a few evaluators commented on the length of the questionnaire which took approximately 45 minutes to complete. With regard to the comment on the clarity of the sentences, ambiguous words were substituted with clearer expressions. With regard to the concerns regarding the length of the questionnaire, the researcher decided to proceed to pilot study for further comment. The Malay version was translated back into English. It was important to ensure there would be no translation errors that could change the meaning of important content. Whenever the meaning of an item was found to differ from the original item in the English questionnaire it was translated again.

Prior to the data collection, a pilot study was conducted in July 2009 in which the researcher administered the Malay version questionnaires to 150 Malaysian workers in Melbourne and Malaysia. The pilot survey respondents completed the questionnaire anonymously. Teijlingen and Hundley (2001) highlighted several advantages of conducting a pilot study including advance warning against the possibility of research failure if the proposed methods or instruments prove not to be appropriate or too complicated to carry out.

All the employees involved in the pilot study were as similar as possible in terms of demographics to the sample intended to be recruited later in Malaysia. Most of the pilot study participants were engineers, technicians and supervisors. The researcher explained the significance of the study and the importance of the respondents' cooperation in finalising the final questionnaires. There was a space provided for them to make comments and to indicate the time taken to complete the whole questionnaire.

In general, the pilot respondents reported that the questionnaires were understandable and clear. However, the issue of the length of the questionnaire was raised again. On average, respondents took about 30 to 45 minutes to complete the questionnaire. To address this issue, none of the original items of questionnaires were dropped; however, the format of the questionnaire was revised to improve readability. For example, the revision of the questionnaire layout decreased the total number of pages from 10 to 7. Those who completed the questionnaires in the pilot study phase were given a token of appreciation (a pen and key-chain). The pilot study data were used only to receive feedback on the instrument and were excluded from further analysis.

3.5.1 Reliability of instruments

In conducting the research, two important characteristics of the measures needed to be maintained, namely, reliability and validity. These two criteria of measurement need to be established in order to reduce measurement errors. Reliability refers to “the degree to which the observed variable measures the true value and is error free” (Hair, Black, Babin, Anderson and Tatham, 2006, p.8). Reliability in essence defines the consistency of measurement over time and between different sections within a psychological questionnaire focusing on the same underlying construct. That is, a good measurement scale must produce reliable results when the measurement is taken repeatedly or between the sections measuring the same construct. In psychological research, psychologists often measure a hidden construct by a psychological measurement scale comprising multiple items. Some questionnaire items within such as a scale may be more accurate than other items in measuring the construct. According to Black (1999), Cronbach's alpha provides reliability coefficients which indicate the internal consistency of a scale. Based on 82

(55% return rate) usable collected pilot questionnaires, Table 1 presents the alpha coefficients of all instruments used. The higher the Cronbach's alpha values (closer to 1), the higher the reliability of the scale (Sekaran, 2003).

Overall, alpha coefficients for all sets of variables obtained a high reliability ranging from .70 to .95. However, a slightly low Cronbach's alpha value for job control ($\alpha = .64$) was reported. Similarly, for one aspect of job affective wellbeing, the alpha coefficient was also below a rule of thumb criterion for desirability measure ($\alpha = 0.67$). However, it has been suggested that a minimum value of .50 is acceptable as an indication of reliability (Hair, Anderson, Tatham & Black, 1995, 1998; Nunnally, 1967). Details of the internal consistency of measured instrument measures are presented in Table 3.4.

Table 3. 4. Internal consistency of the instrument measures based on the pilot study

Variable	Measures	Pilot study α	Previous studies α
Psychosocial work environment	-Job demands -Job control -Social support	.70 .64 .83	.72 .82 .83 (Pelfrene et al., 2001)
Organisational justice	Composite: -Procedural -Interactional -Distributive	.93 .93 .94 .91	Composite: .90 (Elovainio et al., 2002)
Work family conflict	-Work to family conflict (WFC) -Family to work conflict (FWC)	.95 .95	.89 .85 (Frye & Breugh, 2004)
Job satisfaction	Job satisfaction	.76	.91 (Bruck et al., 2002)
Affective wellbeing	- Anxiety-Comfort (A-C) -Depression - Pleasure (D-P) -Bored-enthusiastic (B-E) -Tiredness-Vigor (T-V) -Angry-Placid (A-P).	.67 .79 .80 .70 .71	.85 .84 .79 .81 .86 (Daniels, 2000) Rego and Cunha (2006): between .66 and .79
Life satisfaction	Life satisfaction	.91	.86 (Noor, 2006)
Positive affect negative affect	-Positive affect -Negative affect	.91 .95	.88 .87 (Gallagher & Vella-Brodrick, 2008)
Psychological wellbeing	- Emotional -Social -Psychological	.91 .90 .89	Composite: .92 (Borja & Callahan, 2008)

3.5.2 Validity of instruments

In addition to reducing measurement error by assessing the reliability of the scale, this study also conducted a test to validate the instruments. Validity refers to “the degree to which a measure accurately represents what it is supposed to” (Hair et al., 2006, p.8). In this section, content and construct validity are discussed further.

Content validity refers to the extent to which an empirical measurement reflects a specific domain of content (Carmines & Zeller, 1979). With respect to this validity, all the variables are derived from an extensive review of previous literature (e.g. Daniels, 2000; Diener et al., 1985; Karasek, 1985; Moorman, 1991; Netemeyer et al., 1996). Thus, the items have been tested successfully over many years and found to be valid. However, in order to ensure the content validity of the instruments measured, this study employed pre-testing of instruments involving academic experts and practitioners as well as employees compatible with the context of this study.

Construct validity is concerned with the extent to which a particular measure relates to other measures, consistent with theoretically derived hypotheses concerning the concepts that are being measured (Carmines & Zeller, 1979, p.22). Although principal components analysis (PCA) was not conducted in the pilot data (since the pilot sample size was too small to produce a reliable result) PCA was employed in the main data analysis. The decision to administer the questionnaires to the final respondents was based upon the content validity derived from the literature and volunteer evaluators’ revisions during pre-testing and pilot studies. For the purpose of establishing construct validity, exploratory factor analysis was undertaken with the final data set in order to identify the dimensions of the constructs and also to identify which items belonged to each particular dimension.

3.6 Procedure

Approval was sought and obtained from the Human Research Ethics Committee of Victoria University to ensure that the research plan complied with ethics guidelines. Upon approval from the Research Promotion and Co-Ordination Committee of the Economic Planning Unit, Malaysian Prime Minister’s Department, contacts were made to prospective organisations seeking assistance for research. In the initial stage of data collection, the researcher contacted the listed organisations in

the 2008 Federation of Malaysian Manufacturers Directory by random selection. First of all, the researcher listed all the organisations consisting of 500 and more employees (261 companies). Using systematic random sampling, every fifth organisation in the list was contacted. All of these organisations declined to participate or did not reply. Repeating the procedure resulted in receiving consent from two organisations.

Due to concerns about the time constraints and difficulties in recruiting a sufficient number of participants, the present study then employed purposive and professional connection strategies (Idris, Dollard & Winefield, 2010; Kinman & Jones, 2005). Respondents were selected from a chosen industry, situated on the East (Terengganu and Pahang) and West Coast (Johor, Selangor, Negeri Sembilan and Kedah) of Peninsula Malaysia, where more manufacturing companies are located (FMM Directory of Malaysian Industries, 2008) and by approaching the top management team members (Chen et al., 2009), managers or employees with whom the researcher had professional connections or personal contacts (Lu et al., 2006).

Several procedures were involved at the beginning of seeking approvals from the targeted organisations. Starting with site visits, the researcher met with Human Resource Managers, Heads of Department and Occupational Health and Safety officers. During the discussion, issues such as the objective of the study, the potential respondents and the significance of the study were highlighted as well as the research proposal.

Out of 42 organisations approached through email and telephone, ten organisations replied and granted the researcher permission to approach their employees. According to Neuman (1997), purposive sampling is an effective sampling method for special situations, and is used in exploratory research. Furthermore, using purposive and professional connection strategies was justified because the random approach led to a low response rate from Malaysian organisations that had been involved in previous studies (Idris et al., 2010).

In each organisation, the contact person was the Human Resources Manager who helped the researcher to identify prospective respondents, and to distribute and

collect the questionnaires. To ensure that the procedure of data collection conformed to ethical principles, the researcher included an information letter explaining the aim of the research, research instructions and confidentiality as well as a consent form. All the completed questionnaires were returned in sealed envelopes to the Human Resources Managers within two weeks. Generally, a follow-up reminder was sent after a week via email and telephone to increase the response rate.

Although the researcher planned to administer the questionnaires to all respondents, most of the studied organisations were reluctant to allow direct interaction with workers, especially assembly workers and supervisors, for fear of disturbing the overall production line. Sekaran (2003) highlighted a similar problem (organisations' reluctance to give up company time especially for surveys involving a group of assembly workers) in discussing the disadvantages of personally administered questionnaires. However, the researcher was allowed to personally distribute the questionnaire outside working hours (e.g. lunch time and in between shift changes). For respondents who preferred to complete the questionnaire in their own time, collection at a later time was arranged. Another alternative given to respondents was to mail back the response to the researcher with the self-addressed and stamped envelopes provided to them. In addition, some surveys were distributed and returned via email as requested by participants, especially those at the managerial level.

3.7 Methods of Analysis

This section explains the methods of data analysis used in the current study. Sekaran (2003) argues that data analysis should be undertaken to fulfil a number of goals. Firstly, as a preliminary step, the data analysis captures a feel of the data through descriptive statistics. Secondly, data analysis is used to test the goodness of the data by undertaking factor analysis and reliability tests. Finally, analysis is employed to test the hypotheses postulated in the study.

In this study, the data analyses included preliminary analyses, namely checking for potential outliers, normality, reliability, factor analysis, descriptive statistics and correlations. Subsequently, the main analyses consisted of hierarchical

regression analyses. Finally, additional analyses including t-test and ANOVA were conducted.

3.7.1 Preliminary data analysis

All the data were coded for analysis using the Statistical Package for Social Sciences (SPSS) version 17.0. All the negative items in the questionnaires, including 5 items of psychosocial work environment variables, 19 items of job satisfaction, 15 items of job affective wellbeing and 10 items of negative affect, were reverse coded. Thus, a single score representing each wellbeing indicator was derived from each respondent when the scores were averaged together. Frequencies of all items were examined in order to detect any missing data or error in data entry.

An outlier is an extreme value which can affect statistical results (Tabachnick & Fidell, 2001). Detection of outliers was conducted by examining several graphical outputs including histogram, box plot and normal P-P plot. In addition, this study adopted the benchmark of Hair, Anderson, Tatham and Black (1998) in identifying outliers (standardised scores exceed $SD \pm 3$). In terms of multivariate outliers, this study employed a Mahalanobis distance (D^2) (Hair, Black, Babin & Anderson, 2010; Tabachnick & Fidell, 2007) which allows multivariate outlier assessment whenever several variables are combined.

Subsequent to outlier detection, this study tested the normality of the data, a process which is very significant for conducting the main analysis. The test included comparing the original mean and five percent trimmed mean of each variable, as well as examination of the skewness and kurtosis values. The data does not extremely violate normality if the difference between the two means is not significant (Pallant, 2007). In addition, examining the values of skewness and kurtosis also serves as a complementary check for the normality of the data. Any values of kurtosis were regarded as extreme whenever the kurtosis statistic was above 2.0 or below -2.0 (Munro, 2001), and the value of skewness was regarded as extreme whenever the skewness statistic was above 8.0 or below -8.0 (Kline, 2005). Details of the conduct of the data screening and cleaning and examination of the outliers and normality are discussed in Chapter 4.

Non-response bias was tested by using the method recommended by Armstrong and Overton (1977). Non-response is one of the respondents' variables that may jeopardise the reliability and validity of research findings (Nunnally & Bernstein, 1994). Berg (2005) defined non-response bias as "the mistake one expects to make in estimating a population's characteristics based on a sample of survey in which, due to non-response, certain types of survey respondents are under-represented" (p.3). Non-response bias occurs whenever respondents refuse to complete survey, are uninterested and/or found the survey too complicated (Bennett, 2001). In order to investigate whether non-responses threatened the validity of the research findings, a comprehensive t-tests assessment was conducted to test the significant difference of the non-demographic variables under study between respondents and non-respondents. This was done by treating late respondents as a non-response, as discussed in detail in the next chapter. For demographic variables, chi-square tests were conducted for the same purpose.

In addition to non-response bias, to reduce response bias, the researcher followed the steps applied by Lapierre and Allen (2006). In terms of reducing social desirability, the confidentiality of the respondents was guaranteed by giving the respondents a sealed envelope to use to return the completed questionnaires (either direct to the researcher or through the Human Resources department). In terms of reducing consistency bias, the researcher used different formats for the scales in the questionnaires.

For factor analysis, principal component analysis (PCA) was conducted on all measures used in this study including the psychosocial work environment, organisational justice, work family conflict and dimensions of wellbeing: job satisfaction, job affective wellbeing, life satisfaction, positive affect and negative affect, and psychological wellbeing. PCA "uses the correlations among the variables to develop a small set of components that empirically summarizes the correlations among the variables" (Tabachnick & Fidell, 2007, p.25). Factor analysis was carried out to check differences in the underlying factor and structure of the scales used.

Furthermore, the questionnaires were translated into the Malay language and the wordings were modified to suit the socio-cultural context of Malaysia. This is

considered important because the scales were developed in western countries and differences might exist between the present sample (Malaysian workers) and previous Western samples (Noor, 2004). Detailed results of factor analysis are presented in Chapter 4.

Reliability analysis of the scales was conducted using Cronbach's alpha values. These values are one of the most common indicators of the internal consistency of a scale (Pallant, 2007; Streiner, 2003). Reliability can be defined "as the degree to which measurements of individuals on different occasions, or by different observers, or by similar or parallel tests, produce the same or similar results" (Streiner & Norman, 1995, p.6). There are several opinions regarding what constitutes an acceptable Cronbach's alpha value as discussed in the following chapter.

Common method bias is one source of measurement error that may threaten the validity of a research model (Podsakoff & Organ, 1986). This bias commonly occurs in a cross-sectional study and can be detected whenever most of the variance is captured by a single factor in factor analysis. In other words, if most of the variance is represented by a single factor, it indicates the emergence of common method variance. In this study, Harman's one factor test (Podsakoff, MacKenzie, Lee & Podsakoff, 2003; Podsakoff, Todor, Grover & Huber, 1984) was used to examine whether the results were influenced by common method variance. Using principal component analysis, all items used to measure predictor variables and criterion variables were run simultaneously in a single loading, checking if one factor accounted for most of the shared variance. As another way to minimize this error, the researcher used reversed-score items (Chambel and Curren, 2005).

Demographic data were analysed using descriptive statistics including frequencies, percentage, means and standard deviations. Descriptive statistics also provide the basic information regarding each of the variables in this study which can be easily examined through graphical outputs such as histograms and tables. Pearson's Product Moment Correlation Coefficients were conducted to provide a summary of the direction and strength of the associations between the variables in the study (Pallant, 2007).

3.7.2 Main analysis

Hierarchical multiple regression analysis was conducted to test the main, additive and moderating effect hypotheses (Cohen & Cohen, 1983). This technique was adopted because it allows the unique partitioning of the total explained variance accounted for by the predictor variables. In addition, Chu et al. (2005) state that multiple regression analysis provides estimates of net effects and exploratory power. Using hierarchical regression facilitates the interpretation and understanding of the results. The results reveal how much variance in the criterion variable can be explained by one or a set of predictors included in the steps (Cohen & Cohen, 1983; Malek et al., 2010). Further, multiple regressions provide the R^2 value which indicates whether a set of predictor variables explains a significant proportion of variance in a criterion variable, as well as providing information on the importance of the individual predictor variables by comparing the standardised coefficient beta (β) weights.

This statistical analysis technique has been widely used in work stress literature testing the JDC and JDCS models (e.g. Macklin et al., 2006; Niedhammer et al., 2008; Pomaki & Anagnostopoulou, 2003). In this study, two-way interaction and three-way interaction were tested. Thus, the possibility of multicollinearity occurs if the mean scores of independent variables and moderating variables are multiplied without standardising the scores. This study created interaction terms by standardising the variables before multiplying the variables together as this technique is able to reduce the risk of multicollinearity (Cronbach, 1987; Dunlap & Kemery, 1987; Jaccard et al., 1990).

The variables were introduced into the regression models in four successive steps. In the first step, demographic variables were entered into the model as control variables. In a quantitative study, generally, the main advantage of including respondents' characteristics as control variables in the analysis might be that it decreases the potential of confounding results when testing the moderating effect hypotheses (Jaccard et al., 1990; Kleinbaum, Kupper & Muller, 1988) instead of the major independent variables (Creswell, 2003). In the second step, all the predictor variables, including job demands, procedural, interactional and distributive justice, WFC and FWC, and moderating variables including job control and social support,

were entered into the regression model. In the third step, two-way interaction was added into the model (e.g. job demands x job control, job demands x social support, procedural justice x job control, WFC x social support). In the final step, three-way interaction was entered into the model to complete the analysis (e.g. job demands x job control x social support, procedural justice x job control x social support, WFC x job control x social support).

In regression analysis, β was used to predict the effect or contribution of individual predictor variables on the criterion variable (Polit, 1996). In terms of the interpretation of moderating results, the R^2 value was used to indicate the goodness of the regression model. In addition, a significant F value indicates that the variables entered in each step create an incremental contribution to the prediction of workers' wellbeing (Panatik, 2010). In terms of interaction effect, the effect reaches significance when it contributes to the relationship between predictor and criterion variables and vice versa. The graphical plot (Aiken & West, 1991; Dawson, no date.) further explains the pattern of moderating effect.

3.7.3 Additional analysis

Variables, which did not contribute to the explanation of the theoretical framework and hypotheses but which offered important contributions to literature were tested by using a t-test, MANOVA and ANOVA. For example, the t-test was conducted to investigate sex differences in predictor variables of wellbeing. MANOVA and ANOVA were used to investigate differences in workers' wellbeing according to the key demographic variables including gender, age, ethnic group and marital status.

3.8 Ethical Considerations

Ethical considerations are important whenever the collection of data involves human beings. The main ethical issues to be considered include physical and psychological harm, deception, informed consent and privacy (Neuman, 1997). Firstly, in terms of physical harm, the possibility of such harm to respondents is unlikely to occur in social research science research as the scope of the research rarely involves the use of unsafe equipment (Neuman, 1997). As the current study involves the use of a pencil and paper survey (an economical and efficient means for

collecting data) Wood, Nosko, Desmarais, Ross and Irvine (2006), there is no possibility of physical harm to respondents.

Secondly, the potential of psychological harm is considered. There may be a slight psychological risk connected with the survey questions. Employees who are unsatisfied with the workplace or work-family matters might be reluctant to discuss negative aspects of their work experiences that cause psychological discomfort or distressed during the survey administration. In recognition of this, provision was made for any survey respondents who wished to seek further assistance to be referred to the Kuala Lumpur City Hall Counselling Centre. This is a 24 hour counselling service available to all Malaysians which can be accessed in person, online or by telephone without any charge. This service is provided by the Social and Community Development Department (Official Portal of Kuala Lumpur City Hall for further details).

Thirdly, an ethical research project must not deceive participants. According to Neuman, (1997), deception occurs whenever research misleads participants. Deception creates mistrust and affects the validity of the results. In order to protect the participants from any deceptive practice, the current study explicitly revealed the purpose of the study, along with the names of the researcher and the researcher's supervisor and the organisations with which the researcher is affiliated. In addition, the contact details of the Secretary of the Victoria University Human Research Ethics Committee were included in the consent form provided to respondents involved in the research.

Fourthly, the ethical considerations deal with informed consent. All respondents in the current study were employees aged above 18. Thus, they had the right to volunteer their involvement in the study without parental or guardian consent. The principle of voluntary participation means that individuals are not coerced into participating in the research (Trochim, 2006). In the consent form for this study, respondents were asked to certify that their participation was on a voluntary basis and that they understand they may withdraw from the study at anytime.

Fifthly, to protect the privacy of the research participants, confidentiality and anonymity safeguards were applied (Trochim, 2006). The information provided in the survey was treated confidentially and remains anonymous. Data were aggregated in such a way that individual respondents could not be identified. Upon completion of the data collection, the data were kept securely and was accessible only to the researchers. Upon taking into consideration all the important aspects of ethics, an application for ethical approval was successfully made to the Victoria University Human Research Ethics Committee.

3.9 Chapter Summary

This chapter has discussed the research design adopted in the current study. A questionnaire survey approach was used as a means of quantitative data collection. The survey was distributed to manufacturing employees in Malaysia. The method of selecting the participants was explained and the instruments used in the study were discussed in detail. Prior to the main data collection, a pre-test and pilot study were carried out using adraft version of the research questionnaire, in preparation for the major study. The Cronbach's alpha values indicated internal consistency of the instruments used. This chapter also detailed the procedure for collecting the data.

The statistical analysis carried out in this study was described in three stages, namely, the preliminary, main and additional analysis. In addition to some preliminary statistical analysis techniques, standard regression and hierarchical regression analysis was conducted as the main techniques of analysis in order to answer the main hypotheses. Ethical considerations in conducting research with humans were also highlighted. In the next chapter, the preliminary data analysis and goodness of measures are presented.

CHAPTER 4: PRELIMINARY ANALYSIS AND GOODNESS OF MEASURES

4.1 Introduction

The preceding chapter discussed the research methodology adopted for the present study. This chapter presents the results of the analysis of the data collected from the questionnaire survey. The first part of the chapter describes the first phase which involved preliminary analysis of the data, including data screening and cleaning of data input errors and missing data, detecting outliers and testing normality of data, and descriptive statistics. The second part of the chapter discusses correlations among variables and examines response and non-response bias, followed by a discussion of the goodness of measures. The organisation of the pattern of factor loadings is shown according to the measures in the questionnaire, namely, psychosocial work environment, organisational justice, work family conflict, job satisfaction, job affective wellbeing, life satisfaction, positive and negative affect, and psychological wellbeing. Reliability analysis and common method bias are also considered in this section.

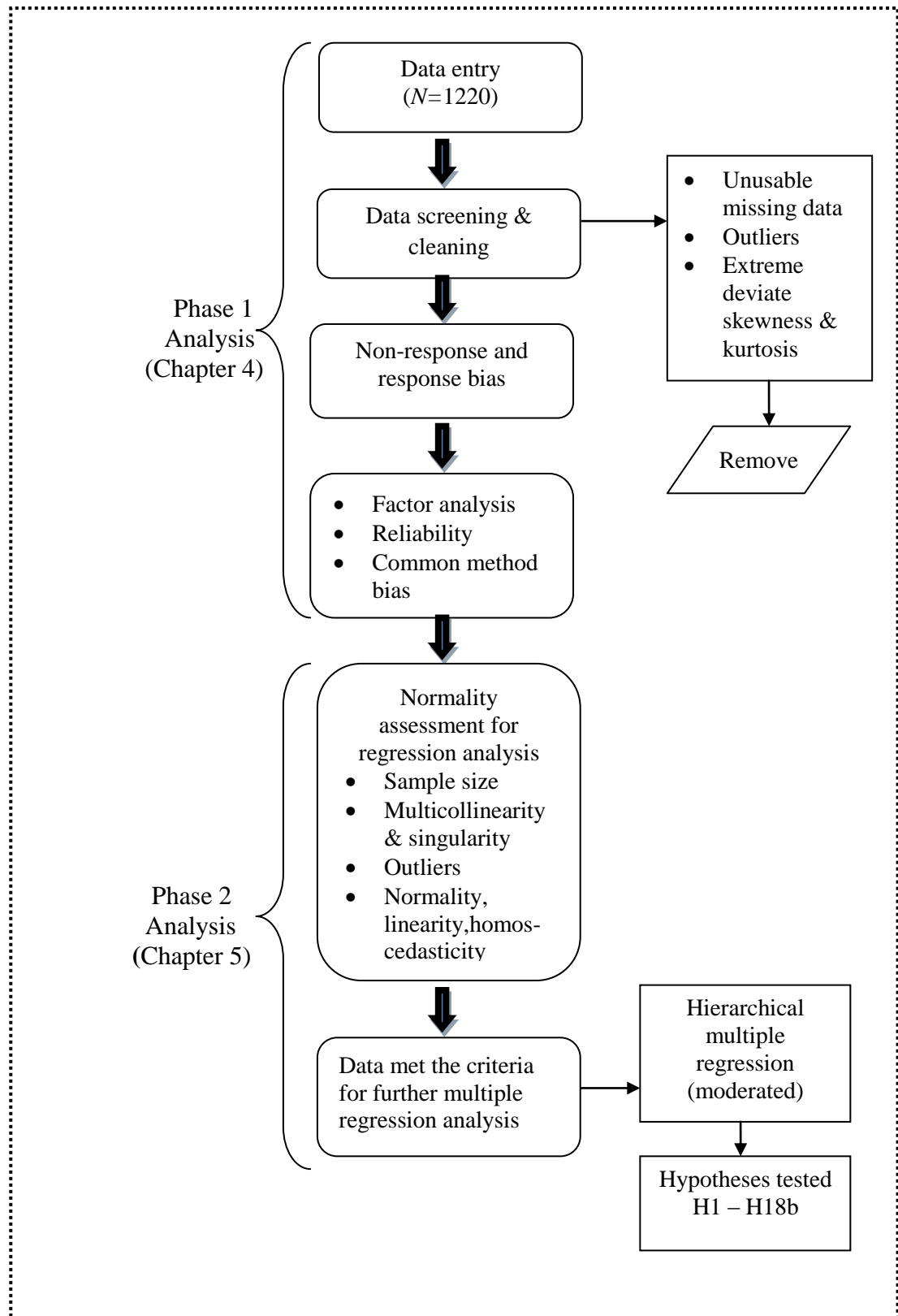


Figure 4. 1. Data analysis flow chart

4.2 Preliminary Analysis

This section discusses the several steps taken before analysing and testing the hypotheses. The raw data underwent a procedure of screening and cleaning in order to identify data entry errors, outliers and the normality of the data (Pallant, 2007). Subsequent to data screening and cleaning, descriptive statistics were analysed in order to present the pattern of data spread such as minimum, maximum, mean, 5% trimmed mean, standard deviation and variance.

4.2.1 Screening and Cleaning the Data

This section discusses the screening and cleaning of the data beginning with detection of inaccurate data entry, missing data and outliers, and assessment of the data normality.

4.2.1.1 Inaccuracy of data entry and missing data

After data collection, data were coded for analysis using the SPSS statistical software version 17.0. A total of 1220 (63%) respondents returned the questionnaires. As recommended by Pallant (2007), through the examination of the frequencies of each variable 41 data input errors were identified and corrected. Seventy-three respondents were found to have missing variables in all sections of the questionnaire, and were excluded from further analysis. In this study, missing data was treated using listwise deletion (Noblet, Rodwell, Deeble & Botten, 2006; Roth, 1994), where cases with any missing responses in any variable are excluded.

Another method is pairwise deletion in which cases are excluded only when the missing response involves a particular analysis or computation (Kline, 2005). Pairwise deletion presents a potential drawback to SEM or multivariate analysis due to the occurrence of out of range correlations or co-variances. In addition, Kline (2005, p.53) noted that an advantage of listwise deletion is that all analysis is conducted with the same number of cases and consistency is maintained. The deletion of cases resulted in a total number of 1,147 respondents at the stage of screening and cleaning the data which was more than enough to conduct further analysis.

4.2.1.2 Detecting outliers

The next step involved in the screening and cleaning of data to identify outliers. Hair et al. (2010, p.63) defined outliers as “observations with a unique combination of characteristics identifiable as distinctly different from the other observations”. In the context of analysis, outliers can be classified as beneficial whenever they represent an observation about the population or problematic whenever their presence distorts the outcome of statistical tests and does not represent the population. Once outliers are identified, the researcher has to decide either to retain or delete the cases before proceeding to the data analysis stage.

Outliers should be retained unless demonstrable proof indicates that they are truly aberrant and not representative of any observations in the population. If outliers are indiscriminately deleted, the researcher runs the risk of improving the multivariate analysis but limiting its generalizability (Hair et al., 2010, p. 66)

The present study performed an inspection of data in order to identify two types of outliers: univariate and multivariate outliers. The identification of each of these outliers is discussed as follows.

Univariate outliers. Detection of univariate outliers was carried out using several graphical outputs such as histogram, box plot, normal P-P plot and detrended normal P-P plot. In addition to these graphical examinations, standardised score values which exceeded a bench mark were also considered as outliers.

There are several opinions regarding the standardised score value which is converted to the z score of each variable to identify outlier cases. According to Tabachnick and Fidell (2007), for a sample size which is less than 1000, potential outliers are cases with standardised scores in excess of about ± 3.3 standardised means. However, with a very large sample, standardised scores in excess of 3.29 are used. Hair et al. (1998) suggested that for a large sample size of 80 or more, a common rule of thumb is that z scores can range from ± 3 to ± 4 of standardised means. Based on the sample size, this study adopted the recommendation of Hair et al. that any value exceeding ± 3 on each of the variables should be removed as an outlier.

Based on the above benchmark, in the initial checking, 108 responses were found to include one outlier or more. Seventy-two cases had only one outlier, fifteen cases had two outliers, nine cases had three outliers and six cases had four outliers. However, they were retained for further analysis. Four cases were identified as having five outliers in their responses and one case had seven outliers in its responses. These five cases were discarded. Fourteen cases that were identified by Casewise Diagnostic as outliers as they exceeded the standardized values benchmark were also removed from future analysis leaving the total number of respondents at this stage at 1,128.

As the questionnaires consist of items asking about employees' perceptions of factors that have an influence on their wellbeing, it is expected that in some of their responses they will strongly agree or disagree with the provided statements. Furthermore, most of the items deal with respondents' cognitive and affective responses. The decision to retain some outliers was in agreement with Tabachnick and Fidell (2007) as deleting all outliers might affect the generalisability of the population studied.

Multivariate outliers. Since most multivariate analysis involves more than two variables, it is important to conduct multivariate outlier assessment. Thus, this study employed a Mahalanobis distance (D^2) method which allows multivariate outlier assessment whenever several variables are combined (Hair et al. 2010; Tabachnick & Fidell, 2007). Mahalanobis distance can be evaluated as a chi square (χ^2) with a degree of freedom equal to the number of independent variables with a probability of $p < .001$ (Pallant, 2007; Tabachnick & Fidell, 2007).

As multiple regression was to be conducted, the dependent variable was used when examining the Mahalanobis distance values using an SPSS regression. Based on this assumption [$\chi^2 (3)=16.27$], any cases in which the critical values of the chi square are above 16.27 were regarded as multivariate outliers. Three cases (ID: 6, 130, 439) were identified as multivariate outliers and discarded from the final set of respondents. The total number of respondents was then 1,125.

4.2.1.3 Normality of data

Examination of the normality of the data is important before a researcher can proceed using the multivariate data analysis. In this study, assessing normality was conducted by inspection of skewness and kurtosis values.

Skewness and kurtosis are two important components of normality. According to Tabachnick and Fidell (2007), skewness is indicated by the symmetry of the distribution. A skewed variable occurs whenever the mean of the variable is not in the centre position of the distribution. Meanwhile, kurtosis can be assessed by looking at the peakedness of distribution. It can be either too peaked with short, thick tails or too thin with long, thin tails. Tabachnick and Fidell stated that a normal distribution shows the values of skewness and kurtosis equal to zero. However, there are several other opinions regarding the extreme values of the skewness and kurtosis that might distort data analysis. Munro (2001) claimed that skewness is regarded as extreme whenever skewness values are above 2.0 and below -2.0. Chou and Bentler (1995), however, proposed a more lenient cut point value for skewness. They stated that an absolute value of univariate skewness greater than 3.0 only represented a skewed data distribution.

In terms of kurtosis, Kline (2005) stated that there is less consensus on its value. Some authors place absolute values from 8.0 to over 20.0 as extreme kurtosis and other researchers conclude that an absolute value of kurtosis greater than 10.0 is regarded a problem and greater than 20.0 a serious one.

According to Pallant (2007), it is normal, especially in social sciences scales, for skewed responses to occur. Pallant added that a skewed response does not reflect a problem with the measure used, but reflects the nature of the underlying construct (p.62). For instance, life satisfaction scales are often negatively skewed as people tend to portray themselves as happy individuals. On the contrary some clinical scales such as anxiety and depression are normally found to be positively skewed as people deny having disorder symptoms. In this study, the life satisfaction measure did not deviate extremely from normality.

In a large sample, the researcher might be less concerned about non-normality variables unless, as discussed by Hair et al. (2010) these variables create further assumption violation (see Hair et al., 2010 for further discussion). They reported that sample size has a significant effect of increasing statistical power by reducing sampling error (p.71). In other words, large sample size is able to reduce the detrimental effect of non-normality on the results. It was claimed that the effect of non-normality on samples of 200 or more could be ignored. Furthermore, Tabachnick and Fidell (2007, p.80) state that, in a large sample, statistically skewed variables do not deviate enough from normality to make a substantive difference in the analysis. In the current study, the skewness and kurtosis values were not found not to extremely violate the normality, as shown in Table 4.1.

Table 4. 1. Skewness and kurtosis analysis of all variables

Construct	<i>M</i>	<i>SD</i>	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	<i>SE</i>	Statistic	<i>SE</i>
Job demands	33.84	4.28	.105	.073	.307	.146
Job control	37.81	4.74	.135	.073	.483	.146
Social support	23.37	3.33	-.101	.073	1.087	.146
Procedural	24.96	4.30	-.483	.073	.245	.146
Interactional	20.90	3.72	-.492	.073	.378	.146
Distributive	15.04	4.33	-.150	.073	-.451	.146
WFC	18.32	7.38	.126	.073	-1.036	.146
FWC	15.43	6.59	.485	.073	-.715	.146
Job satisfaction	132.66	19.50	.388	.073	1.090	.146
Job affective	121.11	24.43	-.157	.073	.164	.146
Life satisfaction	22.31	5.75	-.271	.073	-.399	.146
Positive affect	32.63	6.00	.090	.073	-.036	.146
Negative affect	38.21	6.79	-.449	.073	-.337	.146
Psychological	20.10	5.63	-.712	.073	.824	.146

4.2.2 Descriptive Statistics

Descriptive analysis refers to the “transformation of raw data into a form that would provide information to describe a set of factors in a situation” (Sekaran, 2003, p.394). Normally, descriptive statistics provide information including minimum, maximum, mean, 5% trimmed mean, standard deviation and variance. In addition,

this analysis provides information about the extent of data spread in the study. In this study, low standard deviations indicated that the data were close to the mean score.

Comparing the original mean and the new trimmed mean (5% trimmed mean), the researcher can identify whether the extreme scores caused by outliers have a significant influence on the original mean (Pallant, 2007). If the mean values are very different, the researcher needs to reinvestigate the data. In this study, most of the outliers were retained because their scores do not have a significant influence on the original mean. Table 4.2 shows the details of a comparison between the means and five per cent trimmed means of the data.

Table 4. 2. Descriptive statistics of all variables

Variables	Min	Max	<i>M</i>	5% trimmed mean	<i>SD</i>	Variance
Job demands	16.00	48.00	33.84	33.82	4.28	18.30
Job control	22.00	52.00	37.81	37.76	4.74	22.46
Social support	8.00	32.00	23.36	23.37	3.33	11.07
Procedural justice	9.00	35.00	24.96	25.08	4.30	18.52
Interactional justice	6.00	30.00	20.89	20.99	3.72	13.87
Distributive justice	5.00	25.00	15.04	15.09	4.33	18.78
Work to family conflict	5.00	35.00	18.31	18.25	7.38	54.49
Family to work conflict	5.00	35.00	15.42	15.22	6.59	43.49
Job satisfaction	74.00	216.00	132.66	132.34	19.50	380.16
Job affective wellbeing	30.00	180.00	121.10	121.37	24.43	596.84
Life satisfaction	5.00	35.00	22.31	22.43	5.75	33.06
Positive affect	13.00	50.00	32.62	32.59	6.00	35.96
Negative affect	10.00	48.00	21.79	21.58	6.79	46.05
Psychological wellbeing	.00	30.00	20.09	20.33	5.63	31.73

4.3 Correlations among the Study Variables

Table 4.3 presents the correlations between the study variables including all predictors: the psychosocial work environment (job demands, job control, social support); organisational justice (procedural, interactional and distributive justice); work family conflict (WFC) and family to work conflict (FWC); and wellbeing indicators. Overall the study variables correlated with each other in the expected direction.

Table 4. 3. Means, standard deviations and correlations between the study variables

Variables	<i>M</i>	<i>SD</i>	1	2	3	4	5	6	7
1. Job demands	33.84	4.28	-						
2. Job control	37.81	4.74	.07*	-					
3. Social support	23.37	3.33	-.21**	.26**	-				
4. Procedural	24.96	4.30	-.10**	.19**	.38**	-			
5. Interactional	20.90	3.72	-.13**	.21**	.58**	.49**	-		
6. Distributive	15.04	4.33	-.23**	.16**	.35**	.39**	.46**	-	
7. Work to family	18.32	7.38	.25**	-.06	-.22**	-.18**	-.22**	-.18**	-
8. Family to work	15.43	6.60	.06*	-.05	-.17**	-.10**	-.15**	-.03	.55**
9. Job satisfaction	132.66	19.50	-.26**	.11**	.43**	.34**	.43**	.43**	-.37**
10. Job affective	121.11	24.43	-.20**	.10**	.18**	.17**	.18**	.14**	-.28**
11. Life satisfaction	22.31	5.75	-.07*	.05	.14**	.16**	.15**	.23**	-.12**
12. Positive affect	32.63	6.00	-.01	.31**	.24**	.21**	.24**	.16**	-.12**
13. Negative affect	21.80	6.79	.08**	-.022	-.07*	-.05	-.10**	-.04	.20**
14. Psychological	20.10	5.63	.004	.23**	.15**	.15**	.11**	.11**	-.13**

N = 1165. All are significant at * $p < .05$; ** $p < .01$

Table 4.3. (continued)
Means, standard deviations and correlations between the study variables

Variables	<i>M</i>	<i>SD</i>	8	9	10	11	12	13	14
8. Family to work	15.43	6.60	-						
9. Job satisfaction	132.66	19.50	-.27**	-					
10. Job affective	121.11	24.43	-.15**	.35**	-				
11. Life satisfaction	22.31	5.75	-.10**	.24**	.18**	-			
12. Positive affect	32.63	6.00	-.15**	.23**	.29**	.20**	-		
13. Negative affect	21.80	6.79	.21**	-.24**	-.43**	-.13**	.05	-	
14. Psychological	20.10	5.63	-.20**	.17**	.15**	.34**	.43**	-.10**	-

N= 1165. All are significant at * $p < .05$; ** $p < .01$

4.4 Non-response and Response Bias

Participants in the target sample who did not respond to the survey might share similar and different characteristics with the participants in this study. Failure to get their feedback might affect the generalisability of the findings. In order to test for non-response bias, an extrapolation method by Armstrong and Overton (1977) was employed. A series of t-test were conducted to test the mean difference between respondents, in which the responses from late respondents were treated as non-responses. Late respondents received several reminders and were, most likely not interested in the study, meaning that they could be taken to represent a group of non-respondents. Early respondents ($N=946$) and late respondents ($N=179$) were tested across the demographic and main construct variables.

A test of difference (t -test) was carried out for testing the predictor and criterion variables, whereas, chi-square tests were used for testing the demographic variables. Results indicated that there was no significance difference between early and late respondents' demographics, including age $\chi^2(3,1125) = 1.53, p > .05$, and marital status $\chi^2(3,1125) = 1.15, p > .05$. With regard to the predictor and criterion variables, results of the t -tests revealed that there were no significant differences in terms of the following variables: job demands ($t(1123) = 1.356, p = .176$); social support ($t(1123) = -1.081, p = .280$); procedural justice ($t(1123) = -1.049, p = .295$); interactional justice ($t(1123) = -1.953, p = .051$); family to work conflict ($t(1123) = .721, p = .471$); job affective wellbeing ($t(1123) = .368, p = .713$); life satisfaction ($t(1123) = 1.489, p = .137$); positive affect ($t(1123) = -.664, p = .507$); negative affect ($t(1123) = .820, p = .413$) and psychological wellbeing ($t(1123) = .757, p = .449$).

Significant differences were found for gender $\chi^2(1,1125) = 44.15, p < .001$, ethnic group $\chi^2(3,1125) = 10.55, p < .05$, job control ($t(1123) = -2.350, p < .05$), distributive justice ($t(1123) = -2.618, p < .01$), work to family conflict ($t(1123) = 2.635, p < .01$) and job satisfaction ($t(1123) = -4.480, p < .001$). However, most of the results indicate no significant difference between the responses of early and late respondents, suggesting that the non-response bias was not a significant consideration for the analysis of the study's findings.

In terms of response bias, as discussed in the methodology chapter (Chapter 3), the researcher was able to reduce the incidence of bias through guaranteeing the confidentiality of respondents. Bias was also minimized through the use of different scales and formats in the questionnaires (Lapierre & Allen, 2006).

4.5 Goodness of Measures

It is important to ensure the instruments used in the present study measure the constructs that the researcher intends to measure. This section presents the pattern of items loadings (factor analysis) for each of the variables derived from the Malaysian data gathered in this study. The common method bias and the reliability analysis are discussed.

4.5.1 Factor Analysis

Factor analysis was carried out on the scales to examine whether there was a difference in the underlying factor structure of the scale compared to previous studies, mostly conducted in Western countries (Noor, 2004). In other words, it is important to check whether the items in a scale are tapping into the same factors as reported in Western findings. Although all the measures were adapted from standardised questionnaires, the construct validity of the instruments was assessed using exploratory factor analysis. This validation is important since the scales were translated into Malay to satisfy the requirements of the current research, specific to the socio-cultural context of Malaysia. The results of factor analysis demonstrated that the pattern of responses differed in some scales (job satisfaction and job affective wellbeing) from Western findings. Cultural differences might contribute to the understanding of the difference in the underlying factor structure. Indeed, Burns and Grove (2001) warn that the validity of an instrument varies across samples and situation, therefore, it is necessary to analyse the adequacy of the instruments for Malaysian samples with different socio cultural background.

Factor analysis is defined as “an interdependence technique whose primary purpose is to define the underlying structure among the variables in the analysis” (Hair et al., 2010, p.93). To assess the suitability of factor analysis, sample size and inter-correlations among predictors are to be considered (Pallant, 2007). It is suggested that factor analysis needs a sample size exceeding 300 participants.

However, a sample size of 150 would be acceptable for a strong predictor with .80 factor loadings (Tabachnick & Fidell, 2007). As well as an adequate sample size and substantial inter-correlations between predictors and the criterion variable, it is important to ensure the Bartlett's test of sphericity is statistically significant at $p < .50$ or smaller, and that the Kaiser-Meyer-Olkin measure reaches a value of .60 and above (Pallant, 2007). Neill (2008) highlights that the diagonals of the anti-image correlation matrix over .50 supports, as an additional criterion, the suitability of items for factor analysis. The values of both indicators are presented in the SPSS output.

Principal components analysis (PCA) is a commonly used technique of factor analysis, in which original variables are transformed aiming for smaller combinations that capture most of the variability of the correlation pattern (Pallant, 2007). By using Kaiser's criterion, only factors with an eigenvalue of 1.0 or above are normally retained for further analysis.

Subsequently, once the researcher can identify a pattern of factor loadings, the chosen rotation, either orthogonal or oblique, has to be decided. Tabachnick and Fidell (2007) found that orthogonal rotation is easier to interpret, report and describe than oblique rotation. Furthermore, orthogonal rotation seems to describe independent underlying constructs, which is different from oblique rotation, which represents correlated factors. In the current study, Varimax rotation was used, as the results provided the best defined factor structure and it has also been used in previous studies (e.g. Hadi et al., 2006; Gudmundson, 2003; Watson et al., 1988).

Hair et al. (2006, p.128) proposed three criteria that guide the researcher to assess the loadings:

- i) ± 0.30 to ± 0.40 is the minimum requirement for interpretation of structure;
- ii) ± 0.50 or greater is considered practically significant;
- iii) above $+0.70$ indicates excellent structure and an achievement of the goal of factor analysis.

In determining the statistical significance of factor loadings, this study adopts guideline based on a sample size proposed by Hair et al. (2010). For the purpose of this study, the Varimax rotation (orthogonal) was used with .30 significant loadings as the sample size exceeds 350 and above. Details of the factor analysis of each measure (see Appendix C1-C8), namely, psychosocial work environment, organisational justice, work family conflict, job satisfaction, job affective wellbeing, life satisfaction, positive affect and negative affect and psychological wellbeing are discussed next.

4.5.1.1 Psychosocial work environment

Prior to the factor analysis of the psychosocial work environment variable, several conditions were inspected to determine whether the data met the criteria to undergo the process of factor analysis. The current study consisted of 1125 respondents exceeding the minimum requirement to conduct factor analysis. A correlation matrix inspection revealed the presence of .30 coefficients. The Kaiser-Meyer-Olkin (KMO) measure of sample adequacy had a highly acceptable value of .86 which is in the acceptable range highlighted by Tabachnick and Fidell (2007). Furthermore, the Bartlett's test of sphericity reached statistical significance, (χ^2 (231) = 6806.91, $p < .001$), and the diagonals of the anti-image correlation matrix were all over .50, indicating that the data were appropriate for further factor analysis.

Psychosocial work environment is one of the predictor variables in this study and consists of three main variables: psychological job demands, job control and social support. Initially, the principal component analysis with Varimax rotation produced five factor solutions which had minimum eigenvalues of 1.0 (Table 4.4). However, on the scree plot, three, four and five factor solutions were examined, showing that four factor solutions best fitted the data. This also receives support from previous studies (Cheng et al., 2003; Kawakami, Kobayashi, Araki, Haratani & Furui, 1995). Details of the components' eigenvalues and percentages of variance are shown in Table 4.4.

Table 4. 4. Total eigenvalues and variances for psychosocial work environment

Factor	Eigenvalue	% Variance	% Cumulative variance
1	4.97	22.59	22.59
2	2.76	12.53	35.12
3	1.60	7.29	42.41
4	1.36	6.19	48.60
5	1.20	5.45	54.04

Table 4.5 shows the results of exploratory factor analysis conducted on 22 items of the Job Content Questionnaire (JCQ). The results showed four predictor structures which explain 48.60% of the variance in the psychosocial work environment. Factor 1 consists of nine items related to an individual's ability to control his or her tasks (job control). Job control items loaded in a range from .55 to .70 except two reversed items (items 2 and 8) that loaded -.32 and -.33 respectively. Negative loading was also found in previous studies in Asian settings (Eum et al., 2007; Li et al., 2004). Eight items of social support were loaded separately into factor 2 and factor 3. These two factors consist of supervisor and co-worker support items, which is similar to studies by Cheng et al. (2003) and Kawakami et al. (1995), with the load ranging from .69 to .81. Five items of psychological job demands loaded into Factor 4 ranging between .54 and .59. These items refer to psychological stressors in accomplishing the workload.

Further analysis takes into account only three major factors: psychological job demands, job control and social support (combining both supervisor and co-worker support). This is consistent with the Job Demands-Control (JDC) and Job Demands-Control-Support (JDCS) models (Johnson & Hall, 1988; Karasek, 1979). The analysis confirmed the theoretical constructs in measuring the psychosocial work environment in the Malaysian context (Hadi et al., 2006; Edimansyah et al., 2006). In addition, the substantial correlation between supervisor support and co-worker support supports the approach of grouping them together in one social support scale (Pelfrene et al., 2001). Details of the components loadings are shown in Table 4.5.

Table 4. 5. Job Content Questionnaire (JCQ) scales rotated item loadings with varimax rotation

Items	Factors			
	1	2	3	4
Job control				
1. My job requires that I learn new things.	.59			
2. ^(R) My job involves a lot of repetitive work.	-.32			
3. My job requires me to be creative.	.68			
4. My job requires a high level of skill.	.70			
5. I get to do a variety of different things on my job.	.66			
6. I have an opportunity to develop my own special abilities.	.68			
7. My job allows me to make a lot of decisions on my own.	.57			
8. ^(R) On my job, I have very little freedom to decide how I do my work	-.33			
9. I have a lot of say about what happens on my job.	.55			
Psychological job demands				
10. My job requires working very fast.	.41			.56
11. My job requires working very hard.	.40			.57
12. ^(R) I am not asked to do an excessive amount of work.				.59
13. ^(R) I have enough time to get the job done.				.55
14. ^(R) I am free from conflicting demands that others make.				.54
Social support				
Supervisor support				
15. My supervisor is concerned about the welfare of those under him.	.81			
16. My supervisor pays attention to what I am saying.	.82			
17. My supervisor is helpful in getting the job done.	.81			
18. My supervisor is successful in getting people to work together.	.73		.33	
Co-worker support				
19. People I work with are competent in doing their jobs.			.69	
20. People I work with take a personal interest in me.			.70	
21. People I work with are friendly.			.76	
22. People I work with are helpful in getting the job done.			.79	

Note:

- ^(R) Reverse-coded items.
- **Bold** indicates dominant loading.

4.5.1.2 Organisational justice

Initially, the factorability of the 22 organisational justice items was assessed. Results indicated that the correlation matrix revealed the presence of .30 correlation coefficients. The KMO value was .92, which exceeds the recommended value of .60 (Tabachnick & Fidell, 2007). The Bartlett's test of sphericity further supports the suitability for factor analysis, $\chi^2 (153) = 12042.23$, $p < .001$. All the correlation matrix diagonals of anti-image were over .50

Principal component extraction with Varimax rotation was conducted on 18 items of organisational justice. The result indicated that the organisational justice items loaded well into three different components, namely, procedural, interactional and distributive justice, as discussed by Moorman (1991). As with Moorman, there was no significant cross-factor loading in this study. Three components of organisational justice loaded, accounted for 63.64% of cumulative variance as shown in Table 4.6.

Table 4. 6. Total eigenvalues and variances for organisational justice

Factor	Eigenvalue	% Variance	% Cumulative Variance
1	7.19	39.92	39.92
2	2.46	13.68	53.60
3	1.81	10.05	63.64

The first factor consists of seven items of procedural justice which explained approximately 39.92% of the variance in organisational justice. Procedural justice items disclosed the extent to which managerial procedures emphasise aspects such as consistency, bias suppression and ethics. All procedural items of organisational justice loaded with ranges between .64 and .81. The second factor reflects the distributive justice that loaded between .77 and .89 for items such as “Fairly rewarded in view of the amount of experience you have” and “Fairly rewarded for the stresses and strains of your job”. For the final factor, representing interactional justice, items such as: “Your supervisor provided you with timely feedback about the decision and its implications”, and: “Your supervisor took steps to deal with you in a truthful manner”, loaded ranging from .49 to .81. Details of the component loadings are shown in Table 4.7.

Table 4. 7. Organisational justice scales rotated item loadings with Varimax rotation

Items	Factors		
	1	2	3
Procedural justice			
1. Procedures are designed to collect accurate information necessary for making decision.	.64		
2. Procedures are designed to provide opportunity to appeal or challenge decision.	.57		
3. Procedures are designed to have all sides affected by the decision represented.	.78		
4. Procedures are designed to generate standards so that decisions could be made with consistency.	.78		
5. Procedures are designed to hear the concerns of all those affected by the decision.	.81		
6. Procedures provide useful feedback regarding the decision and its implementation.	.75		
7. Procedures are designed to allow for requests for clarification or additional information about the decision.	.69		
Interactional justice			
8. Your supervisor considered your view point.			.73
9. Your supervisor was able to suppress personal biases.			.49
10. Your supervisor provided you with timely feedback about the decision and its implications.			.74
11. Your supervisor treated you with kindness and consideration.			.81
12. Your supervisor showed concern for your rights as an employee.			.78
13. Your supervisor took steps to deal with you in a truthful manner.			.67
Distributive justice			
14. Fairly rewarded considering the responsibilities.		.81	
15. Fairly rewarded in view of the amount of experience you have.		.86	
16. Fairly rewarded for the amount of effort you put forth.		.89	
17. Fairly rewarded for the work you have done.		.87	
18. Fairly rewarded for the stresses and strains of your job.		.77	

4.5.1.3 Work family conflict

The work family conflict scale was tested for its factorability. Inspection of the correlation matrix revealed the presence of .30 coefficients. The KMO value of .90 was above the minimum recommended value of sampling adequacy (Tabachnick & Fidell, 2007), and the Bartlett's test of sphericity reached statistical significance, $\chi^2(45) = 9093.82$, $p < .001$ supporting the factorability of correlation matrix. The diagonals of the anti-image correlation matrix (over .50) further support the factorability of the work family conflict scale.

Principal component with Varimax rotation performed on the 20 items on the work family conflict scale. They loaded into two factors, namely, work to family conflict (WFC) and family to work conflict (FWC) with eigenvalues of 5.90 and 1.73, respectively. These two factors explain 76.36% of the variance (Table 4.8).

Table 4. 8. Total eigenvalues and variances for work family conflict

Factor	Eigenvalue	% Variance	% Cumulative Variance
1	5.90	59.03	59.03
2	1.73	17.33	76.36

Factor 1 consists of five items related to how the employees perceive work activities interfering with family matters (e.g. “Things I want to do at home do not get done because of the demands my job puts on me”). On the contrary, Factor 2 described five items regarding how family matters interfere with job activities (e.g. My home life interferes with my responsibilities at work such as getting to work on time, accomplishing daily tasks, and working overtime”). Item 6 “The demands of my family or spouse/partner interfere with work-related activities” is a statement of family to work (FWC) conflict and crosses between the factors. Cross-factor loading occurs whenever a variable has more than one significant loading (Hair et al., 2010). However, Item 6 had a stronger primary loading of .73 onto Factor 2 than Factor 1 (.35). Thus, there is a clear and distinctive value, indicating that Item 6 represents one of the five items measuring family to work conflict. On the other hand, all work to family conflict items were cleanly loaded onto Factor 1 as reported in previous studies (Gudmundson, 2003; Netemeyer et al., 1996; Razak et al., 2010). The results,

as shown in Table 4.9, indicate that all items loaded in a simple structure between .73 and .89.

Table 4. 9. Work Family Conflict Scales rotated item loadings with Varimax rotation

Items	Factors	
	1	2
Work to family conflict		
1. The demands of my work interfere with my home and family life.	.78	
2. The amount of time my job takes up makes it difficult to fulfill my family responsibilities.	.89	
3. Things I want to do at home do not get done because of the demands my job puts on me.	.88	
4. My job produces strain that makes it difficult to fulfill family duties.	.86	
5. Due to work related-duties, I have to make changes to my plans for my family activities.	.78	
Family to work conflict		
6. The demands of my family or spouse/partner interfere with work-related activities.	.35	.73
7. I have to put off doing things at work because of demands on my time at home.		.84
8. Things I want to do at work don't get done because of the demands of my family or spouse/partner.		.88
9. My home life interferes with my responsibilities at work such as getting to work on time, accomplishing daily tasks, and working overtime.		.85
10. Family-related strain interferes with my ability to perform job-related duties.		.86

Note:

- **Bold** indicates dominant loading.

4.5.1.4 Job satisfaction

Prior to the principal component analysis, inspection of the factorability of Job Satisfaction Survey (JSS) was examined. The correlation matrix contained correlations of .30 and above. The adequacy of sampling was calculated with the KMO value of .87, which exceeding the minimum value of .60 recommended by Tabachnick and Fidell (2007), and the Bartlett's test of sphericity yielding statistical significance $\chi^2 (630) = 11978.44, p < .001$. This result indicated the suitability of this

scale for factor analysis. All the correlation matrix diagonals of anti-image were above .50, which further supports the factorability of the scale.

Initially, factor analysis performed on 36 items of job satisfaction and principal components analysis revealed the presence of nine possible underlying factors with eigenvalues greater than one (Table 4.10). Spector (1985, 1997) outlined nine subscales of job satisfaction derived from the Job Satisfaction Survey (JSS): pay, promotion, benefits, contingent rewards, supervision, co-workers, operating procedures, nature of work, and communication.

Table 4. 10. Total eigenvalues and variances for job satisfaction

Factor	Eigenvalue	% Variance	% Cumulative Variance
1	5.99	16.65	16.65
2	4.95	13.75	30.40
3	2.12	5.89	36.29
4	1.58	4.40	40.69
5	1.41	3.91	44.60
6	1.20	3.33	47.93
7	1.12	3.12	51.05
8	1.03	2.85	53.90
9	1.01	2.81	56.71

However, following inspection of the scree plot, further Varimax rotation was performed by fixing the extraction into four and three factor loadings as shown in Tables 4.11 and 4.12. This approach was reported in a study by Spector and Wimalasiri (1986) that compared Singaporean and US data with regard to job satisfaction dimensions. Four factor loadings and three factor loadings portrayed the spread of items across the subscales and corroborated the Singaporean data in their study (Spector & Wimalasiri, 1986). In four factor loadings, the Malaysian data from the current study more or less corresponded with Singaporean patterns in terms of pay, promotion and fringe benefits loadings. The three factor solution presented the most spread of items across the subscales for the Malaysian data. Spector and Wimalasiri also pointed out a less meaningful facet of the United States data loading. The findings of factor analysis in this study indicate that there were cultural

differences underlying the structure of the JSS, as was argued by Spector and Wimalasari (1986) and Takalkar and Coover (1994) in their respective studies.

Pallant (2007) suggested reliance on the screeplot as well as using the Kaiser criterion which often causes too many factors be extracted. In this study, 36 items of JSS were rotated again with two factor loadings as these factors capture the most percentage of variance (16.65% and 13.75%) compared to the remaining factors. Thus, the rotation groups the 36 items into two factor loadings: Factor 1 consists of all negative facets (all negative items) except Item 15 “My efforts to do a good job are seldom blocked by red tape”, and Factor 2 consists of all positive facets (all positive items) of job satisfaction which represent 30.40% of explained variance. Generally, Malaysian factor loadings showed that negative items were loaded differently from positive items. Malaysian workers were less likely to indicate their agreement by disagreeing with negatively worded items than agreeing to positive items (Benson & Hocevar, 1985). Takalkar and Coover (1994) reported that there are few items from the operating procedures subscale that Indian workers tend not to regard negatively. For example, they stated that Indian workers might interpret item number 15 (“My efforts to do a good job are seldom blocked by red tape”) differently as perjorative concept of red tape is more common in the United States. Thus, Malaysian responses to the JSS were not free from cultural bias in their interpretation of the questionnaire items. Final analysis takes into account the composite score of job satisfaction as one of the wellbeing indicators.

Table 4. 11. Job Satisfaction Survey rotated item loadings with Varimax rotation (4 factor loadings)

Items	Factors			
	1	2	3	4
Pay				
1. I feel I am being paid a fair amount for the work I do.		.71		
10. ^(R) Raises are few and far between.				.57
19. ^(R) I feel unappreciated by the organisation when I think about what they pay me.	.52	.35		.41
28. I feel satisfied with my chances for salary increment.		.72		
Promotion				
2. ^(R) There is really too little chance for promotion on my job.				.44
11. Those who do well on the job stand a fair chance of being promoted.		.49		
20. People get ahead as fast here as they do in other places.		.42	.34	
33. I am satisfied with chances for promotion.		.66		
Fringe Benefits				
4. ^(R) I am not satisfied with the benefits I receive.				.63
13. The benefits we receive are as good as most other organisations offer.		.45	.31	
22. The benefit package we have is equitable.		.53		
29. ^(R) There are benefits we do not have which we should have.				.40
Contingent rewards				
5. When I do a good job, I receive the recognition for it that I should receive.		.72		
14. ^(R) I do not feel that the work I do is appreciated.	.62			
23. ^(R) There are few rewards for those who work here.				.62
32. ^(R) I don't feel my efforts are rewarded the way they should be.	.50			
Supervision				
3. My supervisor is quite competent in doing his/her job.	.30	.33	.37	
12. ^(R) My supervisor is unfair to me.	.68			
21. ^(R) My supervisor shows too little interest in the feelings of subordinates.	.60			
30. I like my supervisor.			.61	

Table 4.11. (continued)
Job Satisfaction Survey rotated item loadings with Varimax rotation (4 factor loadings)

Items	Factors			
	1	2	3	4
Co-workers				
7. I like the people I work with.			.63	
16. ^(R) I find I have to work harder at my job because of the incompetence of people I work with.	.59			
25. I enjoy my coworkers.			.66	
34. ^(R) There is too much bickering and fighting at work.	.49			
Operating procedures				
6. ^(R) Many of our rules and procedures make doing a good job difficult.				.50
15. My efforts to do a good job are seldom blocked by red tape.	-.34		.32	
24. ^(R) I have too much to do at work.	.51			
31. ^(R) I have too much paperwork.	.42			
Nature of work				
8. ^(R) I sometimes feel my job is meaningless.	.43			
17. I like doing the things I do at work.			.48	
27. I feel a sense of pride in doing my job.			.61	
35. My job is enjoyable.			.62	
Communication				
9. Communications seem good within this organisation.		.36	.44	
18. ^(R) The goals of this organisation are not clear to me.	.54			.43
26. ^(R) I often feel that I do not know what is going on with the organisation.	.38			.46
36. ^(R) Work assignments are not fully explained.	.67			

Note:

- ^(R) indicates negative item that requires for reversed scoring.
- **Bold** indicates dominant loading.

Table 4. 12. Job Satisfaction Survey rotated item loadings with Varimax rotation (3 factor loadings)

Items	Factors		
	1	2	3
Pay			
1. I feel I am being paid a fair amount for the work I do.		.60	
10. ^(R) Raises are few and far between.	.36	.32	
19. ^(R) I feel unappreciated by the organisation when I think about what they pay me.	.65	.35	
28. I feel satisfied with my chances for salary increment.		.78	
Promotion			
2. ^(R) There is really too little chance for promotion on my job.	.34		
11. Those who do well on the job stand a fair chance of being promoted.		.38	.40
20. People get ahead as fast here as they do in other places.		.49	
33. I am satisfied with chances for promotion.		.73	
Fringe Benefits			
4. ^(R) I am not satisfied with the benefits I receive.	.46		
13. The benefits we receive are as good as most other organisations offer.		.55	
22. The benefit package we have is equitable.		.51	
29. ^(R) There are benefits we do not have which we should have.	.45		-.30
Contingent rewards			
5. When I do a good job, I receive the recognition for it that I should receive.		.60	
14. ^(R) I do not feel that the work I do is appreciated.	.62		
23. ^(R) There are few rewards for those who work here.	.47	.35	
32. ^(R) I don't feel my efforts are rewarded the way they should be.	.54		
Supervision			
3. My supervisor is quite competent in doing his/her job.			.53
12. ^(R) My supervisor is unfair to me.	.67		
21. ^(R) My supervisor shows too little interest in the feelings of subordinates.	.62		
30. I like my supervisor.			.53

Table 4.12. (continued)
Job Satisfaction Survey rotated item loadings with Varimax rotation (3 factor loadings)

Items	Factors		
	1	2	3
<i>Co-workers</i>			
7. I like the people I work with.			.64
16. ^(R) I find I have to work harder at my job because of the incompetence of people I work with.	.58		
25. I enjoy my coworkers.			.69
34. ^(R) There is too much bickering and fighting at work.	.47		
<i>Operating procedures</i>			
6. ^(R) Many of our rules and procedures make doing a good job difficult.	.47		
15. My efforts to do a good job are seldom blocked by red tape.	-.33		
24. ^(R) I have too much to do at work.	.57		
31. ^(R) I have too much paper work.	.39		
<i>Nature of work</i>			
8. ^(R) I sometimes feel my job is meaningless.	.50		
17. I like doing the things I do at work.			.39
27. I feel a sense of pride in doing my job.			.62
35. My job is enjoyable.		.35	.49
<i>Communication</i>			
9. Communications seem good within this organisation.		.30	.51
18. ^(R) The goals of this organisation are not clear to me.	.67		
26. ^(R) I often feel that I do not know what is going on with the organisation.	.56		
36. ^(R) Work assignments are not fully explained.	.62		

Note:

- ^(R) Reverse-coded items
- **Bold** indicates dominant loading.

4.5.1.5 Job affective wellbeing

Inspection of the suitability of the job affective wellbeing questionnaire for factor analysis was conducted and the results met all the criteria: the presence of .30 and above coefficients; a highly acceptable KMO value of .91 (Tabachnick & Fidell, 2007); the significance of the Bartlett's test of sphericity $\chi^2(435) = 19779.82, p < .001$ and the presence of over .50 value of the anti-image correlation matrix. Therefore, this scale was found to be suitable for factor analysis.

Initially, principal components extracted six underlying factors with eigenvalues greater than one which explain 29.79%, 17.17%, 5.98%, 4.73%, 4.26% and 3.65% of the variance in job affective wellbeing scores, as shown in Table 4.13. However, one of the factors (Factor 1) consists of only two primary items loading which, according to Costello and Osborne (2005) means it is an unstable factor (see Table 4.14). As a result, five factor solutions as proposed by Daniels (2000) were conducted which explained 61.92% of the variance in job affective wellbeing (see Table 4.15). Job affective wellbeing focuses on how employees perceive the affective wellbeing specifically towards their jobs or work domain (Warr, 1990). Upon performing a Varimax rotation, there were five factor loadings in which the items were dispersed across the subscales, as shown in Table 4.15. The pattern of factor loadings was different to Daniel's study involving social services and university workers in the UK. In the current study, Factor 1 (Depression-Bored-Angry) consists of three items of depression, three items of boredom and three items of anger; Factor 2 (Comfortable-Enthusiastic-Vigour-Patient/Calm) consists of one item of comfort, three items of enthusiasm, three items of vigour and two items of placidity (patient and calm); Factor 3 (At Ease/Relaxed-Pleasure-Placid) consists of two items of comfort, three items of pleasure and one item of placidity (Placid); Factor 4 (Anxiety) consists of three items of anxiety; and Factor 5 (Tiredness) consists of three items of tiredness. Even though cross-loading appears, almost all of values seem to be dominant onto others. Factor 1, 4, and 5 represent a cluster of negative items, whereas, Factors 2 and 3 consist of all positive items of comfort, enthusiasm, pleasure, vigour and placidity.

Examining the overall loading pattern, the current study found that the factor consists of separate positive and negative items more or less correlating with Rego

and Cunha (2006). Their study of 161 employees in Portugal found that 36 items of job affective wellbeing did not fit the five factor model satisfactorily, thus, only fifteen items remained in their study. As Malaysia represents a collectivist culture (Bochner, 1994; Burns & Brady, 1992) similar to Portugal, again the possibility of cultural impact on the interpretation of job affective wellbeing might occur. The scale of Hofstede that measures work-related values of employees in a culture that is individualist/collectivist rates Malaysia as the 26th on the scale, with Portugal rated as 27th representing a relatively high collectivistic culture. Thus, the nature of the respondents is different from the UK respondents in the study by Daniels (2000), as the UK is an individualistic culture with a high score of 89th on Hofstede's scale ("Geert Hofstede cultural dimensions," 2009).

Table 4. 13. Total eigenvalues and variances for job affective wellbeing

Factor	Eigenvalue	% Variance	% Cumulative Variance
1	8.94	29.79	29.79
2	5.15	17.17	46.96
3	1.79	5.98	52.94
4	1.42	4.73	57.66
5	1.28	4.26	61.92
6	1.09	3.65	65.57

Table 4. 14. Job Affective Wellbeing Scale rotated item loadings with Varimax rotation (6 factor loadings)

Items	Factors					
	1	2	3	4	5	6
<i>Anxiety-Comfort</i>						
(R) Anxious				.85		
(R) Worried				.82		
(R) Tense					.67	
At ease		.76				
Relaxed		.80				
Comfortable	.73	.31				
<i>Depression-Pleasure</i>						
(R) Depressed		.32	.44	.41		
(R) Miserable			.50	.37		
(R) Gloomy			.57	.38		
Happy	.34	.71				
Pleased	.39	.71				
Cheerful	.38	.72				
<i>Bored-Enthusiastic</i>						
(R) Bored				.66		.33
(R) Sluggish				.66		
(R) Dull				.75		
Enthusiastic		.56	.41	.33		
Optimistic		.63	.38			
Motivated		.59	.36			
<i>Tiredness-Vigour</i>						
(R) Tired						.82
(R) Fatigue						.77
(R) Sleepy				.40		.61
Active		.62				
Alert		.70				
Full of energy		.70				

Table 4.14. (continued)
Job Affective Wellbeing Scale rotated item loadings with Varimax rotation (6 factor loadings)

Items	Factors					
	1	2	3	4	5	6
Angry-Placid						
^(R) Angry						.70
^(R) Annoyed			.36			.72
^(R) Aggressive	-.35					.71
Placid		.77				
Patient	.65	.31				
Calm	.75					

Note:

- ^(R) Reverse-coded items
- **Bold** indicates dominant loading.

Table 4. 15. Job Affective Wellbeing Scale rotated item loadings with Varimax rotation (5 factor loadings)

Items	Factors				
	1	2	3	4	5
<i>Anxiety-Comfort</i>					
(R) Anxious	.38			.77	
(R) Worried	.44			.73	
(R) Tense	.51			.58	
At ease			.78		
Relaxed			.81		
Comfortable		.69	.34		
<i>Depression-Pleasure</i>					
(R) Depressed	.64		.33		
(R) Miserable	.66				
(R) Gloomy	.70				
Happy		.35	.69		
Pleased		.40	.70		
Cheerful		.40	.70		
<i>Bored-Enthusiastic</i>					
(R) Bored	.69				
(R) Sluggish	.73				
(R) Dull	.77				
Enthusiastic		.56	.41		
Optimistic		.61	.39		
Motivated		.59	.37		
<i>Tiredness-Vigour</i>					
(R) Tired					.79
(R) Fatigue	.45				.72
(R) Sleepy	.44				.55
Active		.64			
Alert		.67			
Full of energy		.72			

Table 4.15. (continued)
Job Affective Wellbeing Scale rotated item loadings with Varimax rotation (5 factor loadings)

Items	Factors				
	1	2	3	4	5
<i>Angry-Placid</i>					
^(R) Angry	.61				
^(R) Annoyed	.70				
^(R) Aggressive	.36	-.50			
Placid			.78		
Patient		.62	.33	.30	
Calm		.71			

Note:

- ^(R) Reverse-coded items
- **Bold** indicates dominant loading.

As recommended by Pallant (2007), the current study examined the scree plot for the scales that extracted too many components. Taking into account the most obvious percentage of variance being captured (29.79% and 17.17%), this study again performed principal component analysis subjected to Varimax rotation, and fixed the number of factors extracted to two. The result shows loading for two factors which accounted for 46.96% of variance in the job affective wellbeing: Factor 1 comprised of all positive items loaded between .55 and .78 and Factor 2 included all negative items loaded between .39 and .74. No single item was dropped for further analysis. Furthermore, this study focuses on total job affective wellbeing, rather than on specific subscales which is similar to the approach employed by Brough and Pears (2004) in their study using Warr's (1990) work-related wellbeing scale. The job affective wellbeing questionnaire of Daniels (2000) has also been modified from Warr (1987, 1990), who originally proposed two dimensions of affective wellbeing: positive and negative. Results of factor analysis in the current study indicated that the Malaysian data fit the two main clusters of affective wellbeing (positive and negative) specifically towards the respondents' jobs. The attempt to extract both positive and negative items loaded in the same factor solution did not work with the Malaysian data which consisted of participants of different ethnicities and cultural backgrounds. This might be due to the different perception responses allocated to the

two highly distinctive dimensions. As Katwyk, Fox, Spector and Kelloway (2000) found emotions appear to position themselves in positive and negative clusters.

4.5.1.6 Life satisfaction

Five items of the Satisfaction with Life Scale (SWLS) were examined to determine if they fulfilled the requirement for undergoing factor analysis. The results indicated that the correlation matrix consisted of coefficients at .30 and above. The overall KMO measure of sample adequacy had a highly acceptable value of .81 (Tabachnick & Fidell, 2007). In addition, Bartlett's test of sphericity indicated that the data matrix had sufficient correlation, $\chi^2(10) = 2391.88$, $p < .001$. All correlation matrix diagonals of anti – image over .50 further supports the suitability of this scale for factor analysis.

The exploratory factor analysis showed that the Satisfaction with Life Scale (SWLS) consisted of five items measuring a single construct. In line with Diener et al. (1985) and Neto (1993), only one factor emerged as having an eigenvalue above one, accounting for 61.45% of the variance in the satisfaction with life score (see Table 4.16). A unidimensional construct was extracted from SWLS items when translated and administered to a diverse sample: as, for example, has been done in studies in Russia (Balatsky & Diener, 1993); India (Howell, Howell & Schwabe, 2006); Hong Kong (Sachs, 2003) and Taiwan (Wu & Yao, 2006). All five items represent the overall judgments of individuals' quality of life such as: "So far I have gotten the important things I want in life", and "If I could live my life over, I would change almost nothing". Evidence showed that this scale has been used with general populations and is appropriate for different age groups (Diener et al., 1985). Three different samples (Study 1 - 176 undergraduate students; Study 2 - 163 undergraduate students; Study 3 - 53 older persons) were involved in the study for development and validation of the scale. The results revealed factor loadings between .61 and .84 and item total correlations between .57 and .75.

Details of the factor loadings of the SWLS, as presented in Table 4.17 indicate that all items loaded between .58 and .86. The loading in this study was higher compared to the loading in Howell et al.'s (2006) study. In their study of over 307 indigenous Malaysians, item number five was changed to: "If you could change

your life, would you change it?”, which required a reverse score resulting in poor loading (0.28). Although including a negative item might reduce response bias, the poor loading of Item 5 might be due to a difficulty in understanding the question, as most of the respondents in Howell et al.’s study were uneducated (40.7% no school and 42% primary school). Responses to this item might also be influenced by the preceding questions.

Table 4. 16. Total eigenvalue and variance for life satisfaction

Factor	Eigenvalue	% Variance	% Cumulative Variance
1	3.07	61.45	61.45

Table 4. 17. The Satisfaction with Life Scale rotated item loadings with Varimax rotation

Items	Factor 1
1. In most ways my life is close to my ideal	.81
2. The conditions of my life are excellent	.84
3. I am satisfied with my life	.86
4. So far I have gotten the important things I want in life	.79
5. If I could live my life over, I would change almost nothing.	.58

4.5.1.7 Positive affect and negative affect

The Positive Affect and Negative Affect Scale (PANAS) items were examined as several requirements needed be met before proceeding to factor analysis. Correlation matrix revealed the presence of coefficients of .30 and above. A highly acceptable KMO value of .88 (Tabachnick & Fidell, 2007) and a significant value of Bartlett’s test of sphericity, $\chi^2(190) = 8175.14$, $p < .001$, indicated suitability for conducting factor analysis. The diagonals of the anti-image correlation matrix (all over .50) further confirm the suitability of the data.

The PANAS consists of 20 items and was subjected to principal component analysis with Varimax rotation. Initially, principal component analysis presented

three eigenvalues exceeding 1.0, explaining 23.68%, 21.41% and 5.91% of the variance in PANAS score as set out in Table 4.18. Examining the scree plot, there is a clear pattern of two factors loading among the items. Therefore, further Varimax rotation with a fixed number of factor loadings was performed (see Table 4.19). The results of two factor solutions provided simple yet meaningful interpretation which received theoretical support from previous studies. Furthermore, the two factors extracted in the current study were consistent with the factors proposed by Watson et al. (1988) who claimed that the structure of affect was derived from at least two dimensions: positive and negative affect.

Table 4.18. Total eigenvalues and variances for positive and negative affect

Factor	Eigenvalue	% Variance	% Cumulative Variance
1	4.74	23.68	23.68
2	4.28	21.41	45.10
3	1.18	5.91	51.00

All 20 items measuring positive affect and negative affect of employees were cleanly loaded onto two factors as shown in Table 4.25. All negative affect items loaded onto Factor 1 between .55 and .80 and all positive affect items loaded onto Factor 2 between .42 and .76, which corroborates the findings of Watson et al. (1988) involving students and employees in the United States. They reported that all items have strong primary loadings (.50 and above). In the current study, these two dominant factors accounted for 45.10% of the variance in PANAS score.

Factor 1 reflects the extent to which an individual feels a variety of negative affects, including distressed, irritable and afraid. On the other hand, Factor 2 consists of ten items that represent an individual's positive affect such as excited, inspired and attentive. However, there is a difference between positive affect and negative affect and the dimensions of job affective wellbeing (Daniels, 2000). PANAS focuses more on context-free wellbeing, which is defined by Fisher, Katz, Miller and Thatcher (2003) as an individual's feeling about life in general without reference to specific settings.

Table 4. 19. Positive Affect Negative Affect Scale rotated item loadings with Varimax rotation

Items	Factors	
	1	2
Positive affect		
1. Interested		.65
3. Excited		.42
5. Strong		.63
9. Enthusiastic		.75
10. Proud		.64
12. Alert		.64
14. Inspired		.45
16. Determined		.74
17. Attentive		.75
19. Active		.76
Negative affect		
2. Distressed	.61	
4. Upset	.62	
6. Guilty	.65	
7. Scared	.73	
8. Hostile	.60	
11. Irritable	.62	
13. Ashamed	.55	
15. Nervous	.77	
18. Jittery	.76	
20. Afraid	.80	
Eigenvalue	23.68%	21.41%

4.5.1.8 Psychological wellbeing

With regard to the psychological wellbeing measure, the suitability of the data for factor analysis was examined. The correlation matrix revealed the existence of .30 and above coefficients. The KMO (.89) exceeded the sampling adequacy as recommended by Tabachnick and Fidell (2007). The Bartlett's test of sphericity reached significance (χ^2 (91) = 6701.80, $p < .001$) and all the correlation matrix diagonals of anti image (were over .50) which confirmed the suitability for factor analysis.

Tables 4.20 and 4.21 present the results of the factor analysis using principal component analysis with Varimax rotation performed on all fourteen items of the Mental Health Continuum Short Form (MHC-SF) borrowed from Keyes (2005). All items loaded well into three dimensions: psychological wellbeing, social wellbeing and emotional wellbeing. This is consistent with the underlying factors suggested by previous studies (Keyes, 2005; Keyes et al., 2008). Three factor loadings explain 60.80% of the variance representing 40.92% for Factor 1 (psychological wellbeing), 10.20% for Factor 2 (social wellbeing) and 9.68% for Factor 3 (emotional wellbeing). Psychological wellbeing consists of six items such as: "...that you had experiences that challenged you to grow and become a better person" and "...that your life has a sense of direction or meaning to it". This subscale reflects "how much individuals are thriving in their personal lives" (Keyes, 2005 p.542). Social wellbeing represents items measuring how far individuals succeed in public/social life such as: "...that you had something important to contribute to society" and "...that the way our society works makes sense to you". Finally, emotional wellbeing contains three items such as: "During the past month how often do you feel interested in life" and "During the past month how often do you feel happy". This subscale reflects the positive affect and satisfaction of individuals.

For further analysis, this study included the psychological wellbeing dimension (Ryff, 1989) as one of the employee wellbeing core components as suggested by Page and Vella-Brodrick (2009). In this study, the psychological wellbeing subscale represents the highest percentage of variance in the MHC-SF. This study revealed that the MHC-SF was a valid and reliable measurement for the Malay speaking population with three loaded factors. MHC-SF has been found to fit

the data in both collectivistic (African) samples (Keyes et al., 2008) and individualistic (United States) samples (Keyes, 2005) cultural backgrounds. Factor analysis conducted involving 1,050 African samples revealed that the MHC-SF replicated the three factors structure (emotional, social and psychological wellbeing) of the US data.

Table 4. 20. Total eigenvalues and variances for psychological wellbeing

Factor	Eigenvalue	% Variance	% Cumulative Variance
1	5.73	40.92	40.92
2	1.43	10.20	51.12
3	1.36	9.68	60.80

Table 4. 21. Mental Health Continuum Short-Form scales rotated item loadings with Varimax rotation

Items	Factors		
	1	2	3
Emotional wellbeing			
1. happy			.80
2. interested in life			.81
3. satisfied			.78
Social wellbeing			
4. that you had something important to contribute to society.		.72	
5. that you belonged to a community (like a social group, or your neighbourhood).		.85	
6. that our society is becoming a better place for people like you.		.79	
7. that people are basically good.	.38	.51	
8. that the way our society works makes sense to you.	.36	.59	
Psychological wellbeing			
9. that you liked most parts of your personality.	.62		
10. good at managing the responsibilities of your daily life.	.70		
11. that you had warm and trusting relationships with others.	.74		
12. that you had experiences that challenged you to grow and become a better person.	.73		
13. confident to think or express your own ideas and opinions.	.70		
14. that your life has a sense of direction or meaning to it.	.74		

Note:

- **Bold** indicates dominant loading.

In summary, the overall principal component analysis applying Varimax rotation to all measures indicates the clean loading of items onto dimensions. Nonetheless, the two measures of job satisfaction and job affective wellbeing loaded differently to the original studies (Daniels, 2000; Spector, 1985, 1997). Almost half of each measure consists of items that require reverse scoring: 19 items for job satisfaction and 15 items for job affective wellbeing. Despite the intention to combine both positive and negative items in a single scale to avoid response bias,

previous studies found that mixed worded scales have an impact on factor analysis in such a way that negatively worded items often load on a separate factor (Benson & Hocevar, 1985; Pilotte & Gable, 1990).

In terms of the total variance explained by the variables, Hair et al. (2006) stated that it is common in social science research to consider less than 60 per cent to be acceptable as the nature of study is often less precise compared to natural science. In the current study, the overall scales explained is consistently more than 60 per cent of the variance with the exception of the Job Content Questionnaires, Job Satisfaction Survey and Positive Affect Negative Affect Scale.

4.5.2 Reliability Analysis

Subsequent to the factor analysis, a reliability test was run to measure the reliability index of the scale as shown in Appendix D. The most common statistical analysis used is Cronbach's coefficient alpha. De Vaus (2002) reports that the strength of Cronbach's alpha is that it provides a comprehensive pattern analysis of internal consistency. In addition, the statistic overviews the correlation of items that are captured by the scale (Pallant, 2007). There are several opinions regarding what constitutes an acceptable Cronbach's alpha value. Nunnally (1967) reported that a minimum value of .50 to .60 is acceptable as an indication of modest reliability, while .80 is acceptable for basic research, .90 is a minimum requirement for clinical purposes and .95 is excellent. DeVellis (2003) and Nunnally (1978) recommend that the ideal value of the Cronbach's alpha coefficient for any scale should be above .70. However, it was noted that achieving a higher reliability value of Cronbach's alpha requires an increasing number of items, as a small number of items in a scale affects the Cronbach's alpha value (Nunnally, 1967; Pallant, 2007; Streiner, 2003). With the possibility of low reliability values from using scales with a few number of items (fewer than 10), the two to four range of inter-items correlation is acceptable (Briggs & Cheek, 1986; Pallant, 2007). Clark and Watson (1995) recommended an average of .15 to .50 for inter-item correlation, that is, .15 to .20 for a broad construct and .40 to .50 for a narrow construct. In addition to inter-item correlation, Nunnally and Bernstein (1994) and Streiner (2003) suggest examination of the item total correlations.

Table 4.22 provides details of the reliability analysis on measurement used in the study. All Cronbach's alpha values reached high values, between 0.70 to 0.92, with the exception of modest reliability for two constructs of psychosocial work environment namely job control (0.68) and psychological job demands (0.51). Similarly to Ylipaavaniemi et al. (2005), item number two (repetitive work) was removed from final analysis to improve job control scale from 0.58 to 0.68. Nevertheless, the low alpha value for the psychological job demands construct is comparable with previous studies in China (Li et al., 2004) and Taiwan (Cheng et al., 2003), and is reported in many previous studies at national and international level (Edimansyah et al., 2008).

With regard to the internal consistency of the Job Satisfaction Survey (JSS) derived from Spector (1997), the Malaysian data indicate moderate reliabilities, except for the operating procedures subscale which is low. Similar to the Malaysian data portraying relatively low to moderate internal consistency reliabilities, a study conducted in India (Takalkar & Coover, 1994) reveals a pattern of reliabilities ranging from .18 (operating procedures) to .69 (supervision), and .85 for total job satisfaction. Again, the operating procedures subscale achieved the lowest reliability for the Singapore data (Spector & Wimalasiri, 1986), indicating a similarity with the result of this study. Examining the Cronbach's alpha coefficient for all facets might be not appropriate, as Streiner (2003) states the alpha value should not be used if it is suspected that the scale is multi-faceted. Furthermore, the number of items for each facet is four, which is small and affects the Cronbach's alpha value as noted by Pallant (2007). More importantly, it should be noted that this study focuses on overall job satisfaction as a holistic wellbeing indicator rather separately on each facet.

Table 4. 22. Reliability of instrument measures

Variable	Source	No of items	Cronbach values
Psychosocial work environment	Karasek (1985)		
• Psychological job demands		5	.51
• Job control		8	.68
• Social support		8	.84
Organisational justice	Moorman (1991)		
• Procedural justice		7	.87
• Interactional justice		6	.84
• Distributive justice		5	.93
Work family conflict	Netemeyer et al., (1996)		
• Work to family conflict		5	.92
• Family to work conflict		5	.92
Job satisfaction	Spector (1997)	36	.84
Job affective wellbeing	Daniels (2000)	30	.91
Life satisfaction	Diener et al., (1985)	5	.83
Positive affect negative affect	Watson et al., (1988)		
• Positive affect		10	.84
• Negative affect		10	.87
Psychological wellbeing	Keyes (2005); Keyes (1998); Ryff (1989)	6	.85

4.6 Common Method Bias

As the current study is a cross-sectional study which is based on self-reported data, the issue of common method bias might arise. Podsakoff and Organ (1986) stated that in self-reporting studies, common method bias can be a major source of measurement error which might threaten the validity of the model (Podsakoff & Organ, 1986) and reduce the reliability of its analysis through biasing bivariate association results and underestimating the moderation effects (Evans, 1985; McClelland & Judd, 1993). The current study dealt with this concern by examining the impact of common method bias as a serious problem prior on further analysis of

the data; it did so using Harman's one factor test was been conducted (Podsakoff et al., 2003; Podsakof et al., 1984). Using principal component analysis, an unrotated analysis extracted 38 factors, explaining 65.27% of cumulative variance on all items in this study. With regard to the factors with eigenvalues greater than 1, the largest factor accounted for only 11.09% of the total variance. Given that a single factor did not appear and did not account for most of the total variance, common method bias did not appear to be a significant or severe threat in this study (Podsakoff & Organ, 1986). Although not precluding the possibility of common method variance, the Harman's one factor test did reveal that its impact did not seriously affect the reported findings. Also, Spector (2006) has argued recently that the problem has been exaggerated.

4.7 Chapter Summary

This chapter discusses the preliminary data analysis in the current study, including the screening and cleaning techniques, and presents the descriptive statistics. Correlations between the study variables were discussed, an independent sample *t*-test and chi-square were performed to test the non-response bias and a technique recommended by Lapierre and Allen (2006) was adopted to reduce the occurrence of response bias. Following this, factor analysis was conducted and revealed the factor structure of the variables involving the Malaysian data, which overall indicates a similarity with the literature on studies in Western settings. In general, the construct validity of the instrument proved to be valid across cultures. The reliability analysis also revealed that the instruments in the current study were reliable. Finally, Harman's one factor test (Podsakoff & Organ, 1986) indicated that the data in the current study were not significantly affected by common method bias. The following chapter further discusses the main analysis carried out to test the hypotheses.

CHAPTER 5: MAIN ANALYSIS AND HYPOTHESES TESTING

5.1 Introduction

This chapter presents the results of main analysis and hypotheses testing. The hierarchical multiple regression analysis was conducted to predict each of the wellbeing indicators: work related wellbeing, the indicators are job satisfaction and job affective wellbeing; non-work related wellbeing, the indicators are life satisfaction, positive affect, negative affect and psychological wellbeing. The results of the model with additive, main and moderating effects (two-way and three-way interactions) are presented to explain the prediction of employee wellbeing. Additional analysis involving independent sample t-test, multivariate analysis of variance (MANOVA) and analysis of variance (ANOVA) are also discussed.

5.2 Hypotheses Testing

Preceding the hypotheses testing, all assumptions of multicollinearity, normality, linearity and homoscedasticity were assessed and the data were found to not violate the assumptions of regression analysis. This chapter presents the results of testing the hypotheses in the current study by reference to the research model of employee wellbeing prediction. To accomplish this goal, hierarchical regression analysis (Cohen & Cohen, 1983) was conducted to test the main effect and moderating effect hypotheses. Demographic variables including gender, age, race and marital status were employed as control variables.

Subsequently, to test the moderating effect of job control and social support according to the JDCS model, two interaction terms were created by multiplying standardized variables. This technique is recommended to reduce the risk of multicollinearity (Cronbach, 1987; Dunlap & Kemery, 1987; Jaccard et al, 1990). Furthermore, Noor (2002) suggests that standardization of the variables before further moderating analysis makes interpretation of the interaction terms easier. Previous research has investigated moderating effects also used standardized

variables (see Macklin et al., 2006; Noor, 2002; O'Driscoll et al., 2004; Pomaki & Anagnostopoulou, 2003).

In the current study, the standardised predictor was multiplied with the moderator variable to examine their effects on employee wellbeing (e.g. “standardised job demands x standardised job control” and “standardised WFC x standardised job control”). In particular, analysis was carried out to examine the moderating effects of two-way interactions. Corresponding to the JDCS model (Johnson & Hall, 1998; Karasek, 1979; Karasek & Theorell, 1990), and to test the moderating effects of three-way interaction, three interaction terms were created from the standardised predictor variables (e.g. “standardised job demands x standardised job control x standardised supervisor support” and “standardised WFC x standardised job control x standardised supervisor support”). For example, these two-way or three-way predictors represent the manner in which the predictive contribution of a predictor is affected by another predictor, hence, representing a moderator effect. When the interaction term reaches statistical significance, the moderation effect is demonstrated. In other words, moderation is present if the interaction term proves to be a statistically significant joint predictor.

Finally, if the interaction term is statistically significant, a further step to inspect the graphical plot as suggested by Aiken and West (1991) and Dawson, (n.d.), was taken.

5.3 Results of Hypotheses Testing

In order to test the additive, main and moderating effects hypotheses, the hierarchical regression analysis was conducted to predict each of the wellbeing indicators (job satisfaction, job affective wellbeing, life satisfaction, positive affect, negative affect and psychological wellbeing) separately (see SPSS output in Appendix E1-E6), and the results are shown in Table 5.1 to 5.8, respectively.

5.3.1 Predictors of job satisfaction

Table 5.1 shows that the Step 1 consisted of control variables (gender, age, race and marital status). However, in this analysis, demographic variables such as gender, age, ethnic group and marital status were not considered as a focus of investigation. Rather these demographic variables were treated as control or intervening variables that may decrease the occurrence of confounding results in testing interaction hypotheses (Jaccard et al., 1990; Kleinbaum et al., 1988). The demographics explained only 1.9 percent of the total variance in predicting job satisfaction.

Table 5. 1. Hierarchical multiple regression analysis predicting job satisfaction from job demands, organisational justice, work family conflict, job control and social support

	Standardised coefficient β			
	Step1	Step 2 <i>Additive Model</i>	Step 3 <i>Interactive Model</i>	Step 4
<i>Control variables</i>				
Gender	-.039	-.035	-.026	-.020
Age	.028	.046	.046	.044
Ethnic	-.120***	-.064**	-.061*	-.062*
Marital status	-.041	-.026	-.023	.021
<i>Predictor variables</i>				
Job demands (JD)		-.097***	-.090***	-.091**
Procedural justice (PJ)		.069*	.072*	.065*
Interactional justice (IJ)		.132***	.127***	.118***
Distributive justice (DJ)		.213***	.210***	.213***
Work to family conflict (WFC)		-.166***	-.170***	-.178***
Family to work conflict (FWC)		-.104***	-.111***	-.105***
Job control (JC)		-.015	-.015	-.039
Social support (SS)		.183***	.177***	.175***
<i>Two-way interaction</i>				
JD x JC			.003	.007
JD x SS			.125***	.118***
JC x SS			.046	-.058
PJ x JC			-.014	-.004
PJ x SS			.043	.028
IJ x JC			-.068*	-.077*
IJ x SS			-.049	-.065
DJ x JC			.049	.044
DJ x SS			-.008	-.006
WFC x JC			-.022	-.028
WFC x SS			-.053	-.040
FWC x JC			.023	.020
FWC x SS			-.046	-.032

Table 5.1. (continued)

Hierarchical multiple regression analysis predicting job satisfaction from job demands, organisational justice, work family conflict, job control and social support

	Step1	Standardised coefficient β		
		Step 2	Step 3	Step 4
		<i>Additive Model</i>	<i>Interactive Model</i>	
<hr/>				
<i>Three-way interaction</i>				
JD x JC x SS				.006
PJ x JC x SS				.054
IJ x JC x SS				-.001
DJ x JC x SS				.025
WFC x JC x SS				.043
FWC x JC x SS				-.073
R^2	.019	.373	.399	.404
ΔR^2	.019***	.354***	.025***	.005
F change	5.51** *	78.58***	3.55***	1.59
Df	4,1120	8,1112	13,1099	6,1093

* $p < .05$; ** $p < .01$; *** $p < .001$

5.3.1.1 Testing additive and main effect hypotheses

The combined additive effect of all predictor variables represents the effectiveness of a typical multiple regression model. What extent of the variance in a dependent variable can be explained by more than one predictor? The results show that after entering all predictor variables in Step 2 (Table 5.1), the total variance in predicting job satisfaction as a whole was 37.3%, $F(12,1112) = 55.24$, $p < .001$.

Subsequent to the additive effect, the current study examines the main effect contribution of each predictor variable. The main effect is the direct contribution of each predictor variable to explaining the variance in a dependent variable. With regard to the main effect, this study examined the effect of each predictor variable including job demands, procedural justice, interactional justice, distributive justice, work to family conflict (WFC), family to work conflict (FWC), job control and social support, in predicting job satisfaction. All predictors in the model except job control ($\beta = -.015$, $SE = .014$, $p > .05$) were statistically significant *independent* predictors of job satisfaction: job demands ($\beta = -.097$, $SE = .014$, $p < .001$),

procedural justice ($\beta = .069$, $SE = .015$, $p < .05$), interactional justice ($\beta = .132$, $SE = .018$, $p < .001$), distributive justice ($\beta = .213$, $SE = .015$, $p < .001$), WFC ($\beta = -.166$, $SE = .016$, $p < .001$), FWC ($\beta = -.104$, $SE = .016$, $p < .001$) and social support ($\beta = .183$, $SE = .017$, $p < .001$). Specifically, the results indicated that high job demands and high WFC and FWC were related to low job satisfaction, and that low procedural, interactional and distributive justice and social support were also related to low job satisfaction.

5.3.1.2 Testing moderating effect hypothesis (two-way interaction)

Following the additive and main effect analysis, this study tested the moderating effect of job control and social support. The moderating effect analysis indicated by the interactive effect of job control or social support and job demands; the interaction of job control or social support and organisational justice (procedural, interactional and distributive); and the interaction of job control or social support and work family conflict (WFC and FWC). This moderating analysis allows estimates of the interactive effect of predictors' contribution in explaining job satisfaction.

Consequently, in Step 3 (Table 5.1), cross-product terms (e.g. job demands x job control or job demands x social support) were added to the equation model, which explained an additional 2.5 percent of total variance in predicting job satisfaction, thereby making the overall equation up to this stage accounted for 39.9 percent of total variance in the job satisfaction, $F(25,1099) = 29.15$, $p < .001$. However, among cross-product predictors, only the interactive effect of job demands and social support and that of interactional justice and job control were statistically significant in predicting job satisfaction. The visual inspection of interaction plots and interpretation of these interactions followed the procedure by Aiken and West (1991) and Dawson (n.d.), in which the regression lines were plotted at high (+1SD) and low (-1SD). These interactions are illustrated in Figures 5.3 and 5.4.

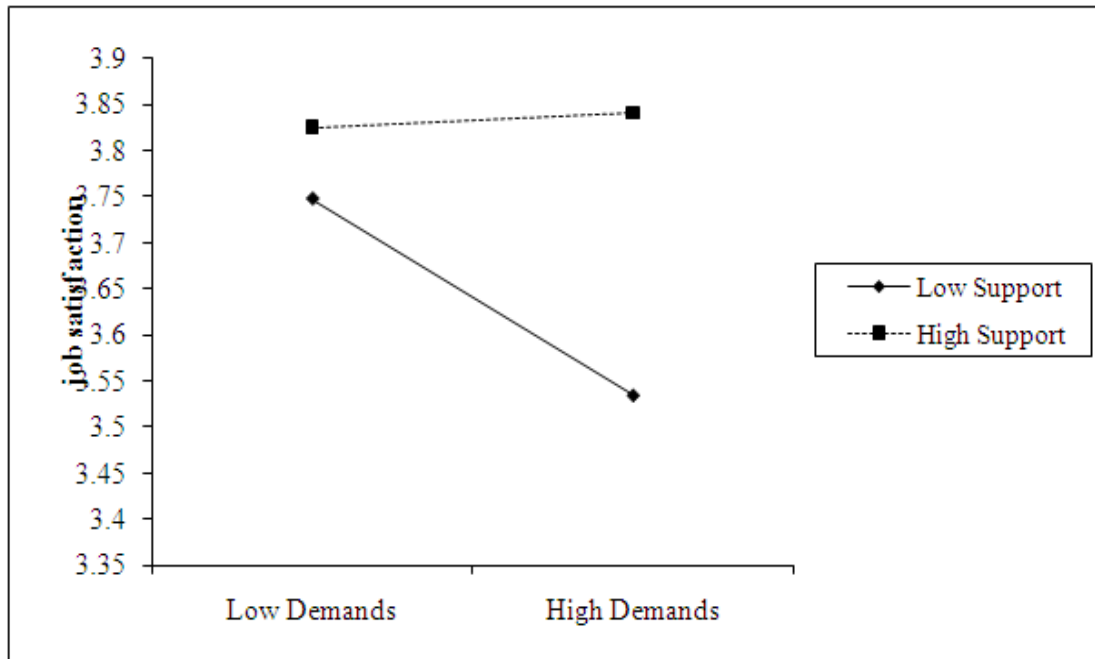


Figure 5. 1. Two-way interaction of job demands and social support in predicting job satisfaction

Figure 5.1 presents the statistically significant two-way interaction between job demands and social support ($\beta = .125$, $SE = .013$, $p < .001$). There is a negative predictor relationship between high job demands and job satisfaction among employees who reported perceived low social support. In contrast, this pattern of negative relationship did not occur among employees with high social support. Employees in this study benefit from working with highly supportive supervisors and co-workers: thus, their perceptions of high job demands were less likely to decrease their job satisfaction compared to their workmates with low social support. Among all the significant two-way interaction effects in the current study, the interaction between job demands and social support on job satisfaction was the most reliably consistent with the JDCS prediction.

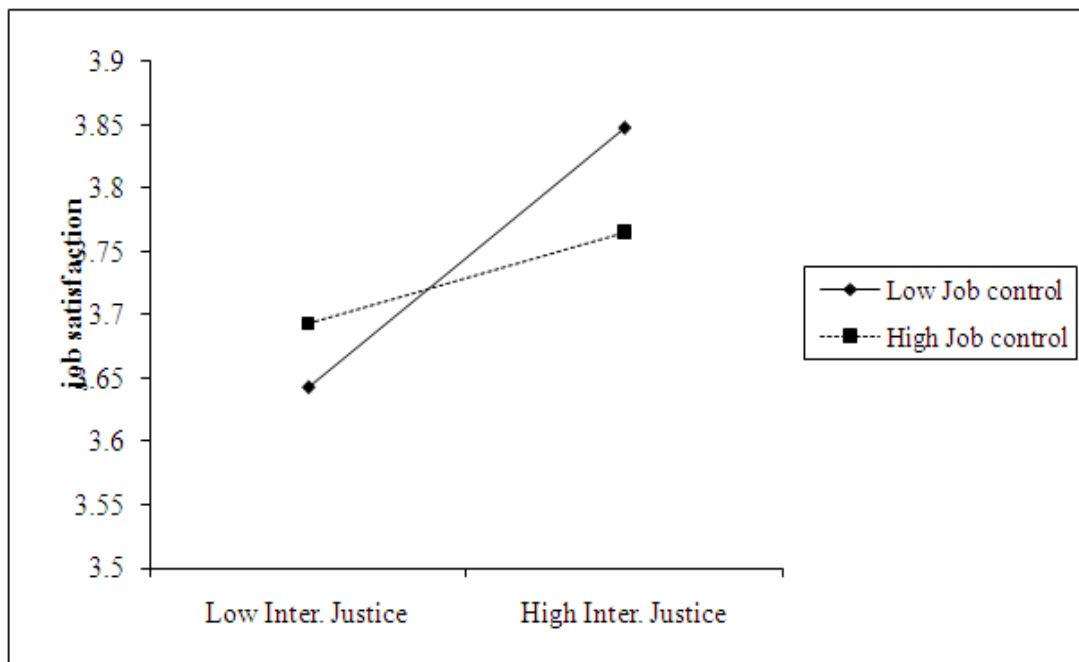


Figure 5. 2. Two-way interaction of interactional justice and job control in predicting job satisfaction

Figure 5.2 indicates a positive predictor relationship between interactional justice and job satisfaction for employees who reported high or low job control. Examining the pattern of significance of this two-way interaction ($\beta = -.068$, $SE = .017$, $p < .05$), the observed two-way interaction effect explained that when employees perceived high interactional justice, the levels of job satisfaction increased among workers with low job control. In contrast, employees who perceived the interactive effect of high interactional justice and high job control reported lower levels of job satisfaction.

5.3.1.3 Testing moderating effect hypothesis (three-way interaction)

The current study involves testing the higher order interaction of three-way joint interactive effects of the predictor contribution in predicting job satisfaction. A three way interaction is an interaction among three variables in predicting the dependent variable. Consistent with the Job Demands-Control-Support (JDCS) model, the current study further tested the joint interactive effect of: job demands and job control and social support; organisational justice (procedural, interactional and distributive) and job control and social support; and work family conflict (WFC and FWC) and job control and social support in predicting job satisfaction.

The three-way joint interactive predictors were included into the equation model in Step 4 (Table 5.1). Adding cross-product terms (e.g. job demands x job control x social support) in Step 4 did not result in any statistically significant increase in the amount of variance explained in job satisfaction. Thus, there was insufficient evidence for joint interactive predictor effects.

For the following analysis of prediction models for predicting job affective wellbeing, life satisfaction, positive affect, negative affect and psychological wellbeing, the similar order of hierarchical regression model steps were carried out to examine the main, additive and moderating effects hypotheses.

5.4 Predictors of job affective wellbeing

Table 5.2 illustrates the results for the prediction of job affective wellbeing. No statistically significant contribution of demographic variables was found in Step 1. Subsequently, the results of the regression reveal that the combination of job demands, organisational justice, work family conflict, job control and social support explained 11.9% of the total variance in job affective wellbeing, $F(12,1112) = 12.83$, $p < .001$. Inspecting the independent effect of each predictor, only job demands ($\beta = -.137$, $SE = .025$, $p < .001$) and WFC ($\beta = -.221$, $SE = .029$, $p < .001$) were statistically significant *independent* predictors of job affective wellbeing. Interactive models (Step3 and Step 4) which include two-way and three-way joint interactions did not reach statistical significance. No evidence of a moderating effect of job control and social support in predicting job affective wellbeing could be demonstrated by the findings.

Table 5. 2. Hierarchical multiple regression analysis predicting job affective wellbeing from job demands, organisational justice, work family conflict, job control and social support

	Standardised coefficient β			
	Step1	Step 2 <i>Additive Model</i>	Step 3 <i>Interactive Model</i>	Step 4
<i>Control variables</i>				
Gender	-.009	-.021	-.016	-.020
Age	.012	.011	.015	.015
Ethnic	-.036	.000	.003	.003
Marital status	.040	.045	.043	.045
<i>Predictor variables</i>				
Job demands (JD)		-.137***	-.131***	-.140***
Procedural justice (PJ)		.058	.071*	.079*
Interactional justice (IJ)		.061	.052	.042
Distributive justice (DJ)		-.006	-.009	-.014
Work to family conflict (WFC)		-.221***	-.224***	-.231***
Family to work conflict (FWC)		.008	.007	.015
Job control (JC)		.053	.052	.054
Social support (SS)		.037	.041	.039
<i>Two-way interaction</i>				
JD x JC			-.001	.018
JD x SS			.017	.013
JC x SS			-.010	-.002
PJ x JC			-.035	-.065
PJ x SS			.045	.042
IJ x JC			-.051	-.043
IJ x SS			-.009	-.013
DJ x JC			.076*	.092*
DJ x SS			-.076*	-.074*
WFC x JC			-.035	-.037
WFC x SS			.010	.021
FWC x JC			.009	.002
FWC x SS			-.012	-.003

Table 5.2. (continued)

Hierarchical multiple regression analysis predicting job affective wellbeing from job demands, organisational justice, work family conflict, job control and social support

	Step1	Standardised coefficient β		
		Step 2	Step 3	Step 4
		<i>Additive Model</i>	<i>Interactive Model</i>	
<hr/>				
<i>Three-way interaction</i>				
JD x JC x SS				.049
PJ x JC x SS				-.083*
IJ x JC x SS				.069
DJ x JC x SS				.016
WFC x JC x SS				.025
FWC x JC x SS				-.062
R^2	.003	.122	.132	.139
ΔR^2	.003	.119***	.011	.007
F change	.710	18.85***	1.06	1.39
Df	4,1120	8,1112	13,1099	6,1093

* $p < .05$; ** $p < .01$; *** $p < .001$

5.5 Predictors of life satisfaction

The result of the regression analysis in Table 5.3 shows that entering demographic variables in the first step of the analysis accounted for 2.6 percent of variance in predicting life satisfaction. All predictor variables entered into the equation model in the second step explained 6.6% of the variance in life satisfaction, $F(12,1112) = 9.47$, $p < .001$. The low percentage of variance in explaining life satisfaction might be attributed to only distributive justice ($\beta = .177$, $SE = .039$, $p < .001$) being found to be a statistically significant *independent* predictor of life satisfaction. At the third and final step, no significant interaction terms were found indicating no support for moderating effect hypotheses.

Table 5. 3. Hierarchical multiple regression analysis predicting life satisfaction from job demands, organisational justice, work family conflict, job control and social support

	Standardised coefficient β			
	Step1	Step 2 <i>Additive Model</i>	Step 3 <i>Interactive Model</i>	Step 4
<i>Control variables</i>				
Gender	-.082**	-.069*	-.066*	-.060*
Age	.105**	.103**	.103**	.099**
Ethnic	.032	.061*	.059*	.063*
Marital status	.076*	.077*	.075*	.079*
<i>Predictor variables</i>				
Job demands (JD)		-.009	-.007	-.018
Procedural justice (PJ)		.053	.064	.054
Interactional justice (IJ)		.010	.008	-.012
Distributive justice (DJ)		.177***	.175***	.184***
Work to family conflict (WFC)		-.049	-.043	-.051
Family to work conflict (FWC)		-.052	-.052	-.054
Job control (JC)		-.005	-.010	-.037
Social support (SS)		.039	.035	.031
<i>Two-way interaction</i>				
JD x JC			.001	.004
JD x SS			.036	.039
JC x SS			.008	-.004
PJ x JC			-.047	-.040
PJ x SS			.064	.049
IJ x JC			-.034	-.012
IJ x SS			-.060	-.069
DJ x JC			-.008	-.013
DJ x SS			.022	.020
WFC x JC			-.028	-.035
WFC x SS			-.053	-.055
FWC x JC			-.037	-.024
FWC x SS			.022	.040

Table 5.3. (continued)

Hierarchical multiple regression analysis predicting life satisfaction from job demands, organisational justice, work family conflict, job control and social support

	Standardised coefficient β			
	Step1	Step 2 <i>Additive Model</i>	Step 3 <i>Interactive Model</i>	Step 4
<i>Three-way interaction</i>				
JD x JC x SS				.027
PJ x JC x SS				.045
IJ x JC x SS				.087
DJ x JC x SS				-.027
WFC x JC x SS				.029
FWC x JC x SS				-.004
R^2	.026	.093	.105	.112
ΔR^2	.026***	.066***	.012	.007
F change	7.53***	10.19***	1.15	1.39
Df	4,1120	8,1112	13,1099	6,1093

* $p < .05$; ** $p < .01$; *** $p < .001$

5.6 Predictors of positive affect

Table 5.4 provides the results of hierarchical regression analysis in predicting employees' positive affect. As a control variable in Step 1, only gender had a significant effect and accounted for 2 percent of variance in positive affect. In Step 2, including all predictor variables into the model explained 14.2% of the variance, $F(12,1112) = 17.88$, $p < .001$. Examining the independent role of predictors, only procedural justice ($\beta = .094$, $SE = .020$, $p < .01$), FWC ($\beta = -.106$, $SE = .020$, $p < .01$) and job control ($\beta = .228$, $SE = .018$, $p < .001$) were significantly associated with positive affect.

Table 5. 4. Hierarchical multiple regression analysis predicting positive affect from job demands, organisational justice, work family conflict, job control and social support

	Standardised coefficient β			
	Step1	Step 2 <i>Additive Model</i>	Step 3 <i>Interactive Model</i>	Step 4
<i>Control variables</i>				
Gender	.133***	.105***	.107***	.112***
Age	.025	.023	.029	.027
Ethnic	.039	.057*	.053	.051
Marital status	-.047	-.064*	-.055	-.051
<i>Predictor variables</i>				
Job demands (JD)		.019	.020	.035
Procedural justice (PJ)		.094**	.101**	.103**
Interactional justice (IJ)		.070	.071	.073
Distributive justice (DJ)		.045	.025	.029
Work to family conflict (WFC)		-.003	-.013	-.029
Family to work conflict (FWC)		-.106**	-.094**	-.085*
Job control (JC)		.228***	.226***	.202***
Social support (SS)		.065	.060	.083*
<i>Two-way interaction</i>				
JD x JC			-.024	-.033
JD x SS			.033	.032
JC x SS			-.050	-.033
PJ x JC			-.034	-.031
PJ x SS			.070	.060
IJ x JC			.012	.005
IJ x SS			.029	.017
DJ x JC			.088**	.082*
DJ x SS			.004	.010
WFC x JC			-.010	-.009
WFC x SS			-.094*	-.090*
FWC x JC			-.010	-.015
FWC x SS			.001	.010

Table 5.4. (continued)

Hierarchical multiple regression analysis predicting positive affect from job demands, organisational justice, work family conflict, job control and social support

	Step1	Standardised coefficient β		
		Step 2	Step 3	Step 4
		<i>Additive Model</i>	<i>Interactive Model</i>	
<hr/>				
<i>Three-way interaction</i>				
JD x JC x SS				-.052
PJ x JC x SS				.011
IJ x JC x SS				.038
DJ x JC x SS				-.022
WFC x JC x SS				.061
FWC x JC x SS				-.073
R^2	.020	.162	.190	.194
ΔR^2	.020***	.142***	.029***	.004
F change	5.75***	23.47***	2.99***	.886
Df	4,1120	8,1112	13,1099	6,1093

* $p < .05$; ** $p < .01$; *** $p < .001$

Step 3, which includes two-way interaction terms in the model accounted for a significant additional 2.9 percent increment in predicting positive affect, $F(25,1099) = 10.33$, $p < .001$. The equation overall explained 19 percent variance of positive affect. Support was found for a moderating effect of job control on the relationship between distributive justice and positive affect, and a moderating effect of social support on the relationship between WFC and positive affect. For more specific interactions, the graphical plots (Aiken & West, 1991; Dawson, n.d.) are illustrated in Figures 5.5 and 5.6. The final model, which includes three-way interactions in Step 4, was insignificant in explaining an additional increment in positive affect.

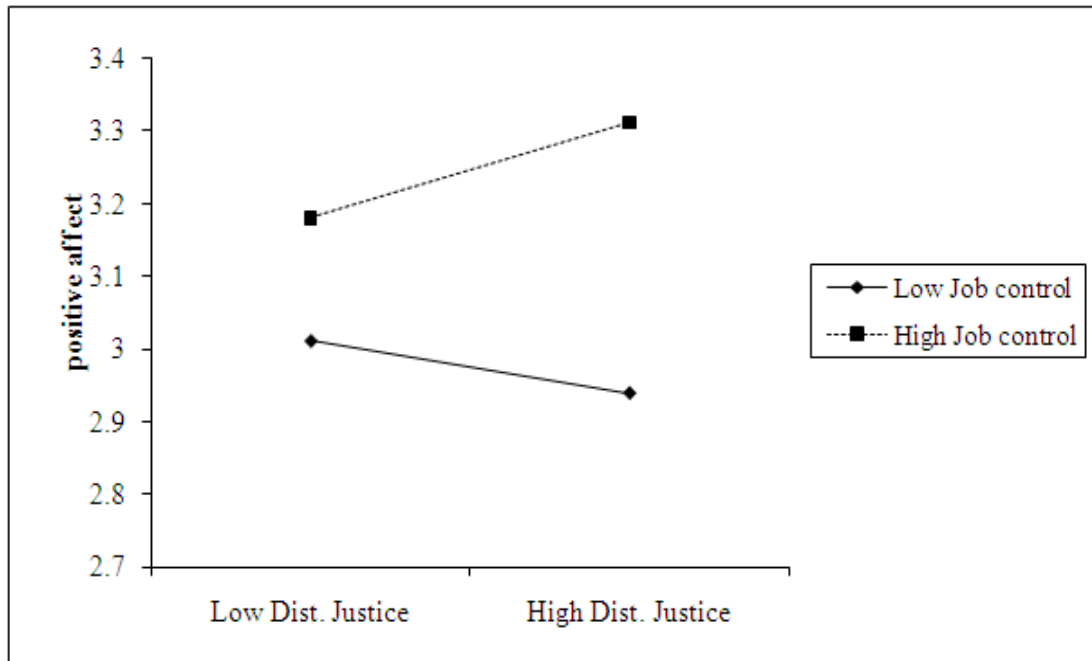


Figure 5. 3. Two-way interaction of distributive justice and job control in predicting positive affect

Figure 5.3 displays a positive relationship between high distributive justice and positive affect. The interactive effect of high distributive justice and high job control ($\beta = .088$, $SE = .019$, $p < .01$) significantly increases employees' reported experience of positive affect.

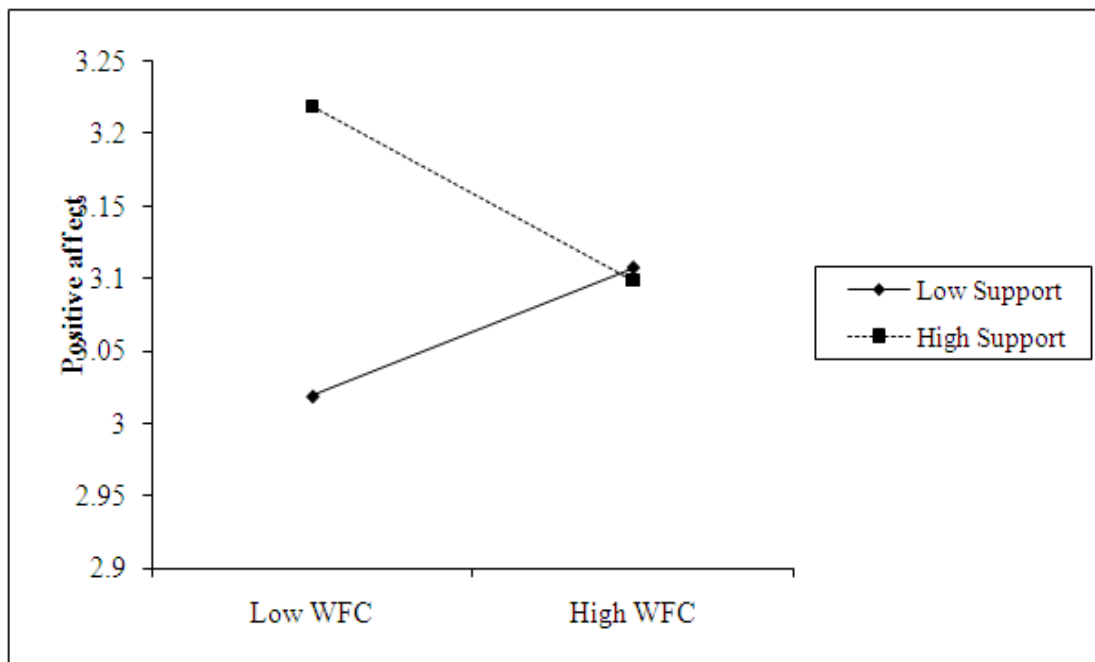


Figure 5. 4. Two-way interaction of WFC and social support in predicting positive affect

Figure 5.4 shows the significant two-way interaction between work family conflict and social support on positive affect ($\beta = -.094$, $SE = .023$, $p < .05$). However, the interaction did not provide support for the prediction of the Job Demands-Control (JDC) and JDCS models in which there is a positive relationship between WFC and employee positive affect among employees with low social support. Employees with high WFC and low social support reported increasing levels of positive affect, whereas, employees with high work family conflict and high social support reported decreasing levels of positive affect. The pattern of the two-way interaction reflects a *reverse* buffering effect of social support (Beehr & Glazer, 2001; Redman & Snape, 2006).

5.7 Predictors of negative affect

None of the control demographic variables entered in the first step reached statistical significance as shown in Table 5.5. In Step 2, including all predictor variables into the regression model explained only a low percentage of variance (6.1%, $F(12,1112) = 6.82$, $p < .001$) in the variance of negative affect. Among all predictors, only WFC ($\beta = .115$, $SE = .025$, $p < .01$) and FWC ($\beta = .136$, $SE = .024$, $p < .001$) were statistically significant *independent* predictors of negative affect. None of the two-way and three way joint interactive effects of predictors reached statistical significance, providing no evidence of moderating effects.

Table 5. 5. Hierarchical multiple regression analysis predicting negative affect from job demands, organisational justice, work family conflict, job control and social support

	Standardised coefficient β			
	Step1	Step 2 <i>Additive Model</i>	Step 3 <i>Interactive Model</i>	Step 4
<i>Control variables</i>				
Gender	-.019	-.018	-.021	-.023
Age	-.064	-.077*	-.078*	-.076*
Ethnic	-.031	-.051	-.058	-.059
Marital status	-.031	-.034	-.023	-.026
<i>Predictor variables</i>				
Job demands (JD)		.051	.051	.055
Procedural justice (PJ)		-.004	-.013	-.012
Interactional justice (IJ)		-.063	-.058	-.044
Distributive justice (DJ)		.023	.022	.017
Work to family conflict (WFC)		.115**	.117**	.129**
Family to work conflict (FWC)		.136***	.139***	.134***
Job control (JC)		.006	.012	.025
Social support (CS)		.017	.018	.018
<i>Two-way interaction</i>				
JD x JC			.014	.009
JD x SS			-.032	-.034
JC x SS			.031	.034
PJ x JC			-.049	-.042
PJ x SS			.006	.013
IJ x JC			-.049	-.061
IJ x SS			-.005	.002
DJ x JC			.062	.060
DJ x SS			.087*	.084*
WFC x JC			.052	.055
WFC x SS			.014	.011
FWC x JC			-.026	-.029
FWC x SS			.002	-.010

Table 5.5. (continued)

Hierarchical multiple regression analysis predicting negative affect from job demands, organisational justice, work family conflict, job control and social support

	Step1	Standardised coefficient β		
		Step 2	Step 3	Step 4
		<i>Additive Model</i>	<i>Interactive Model</i>	
<hr/>				
<i>Three-way interaction</i>				
JD x JC x SS				-.015
PJ x JC x SS				.013
IJ x JC x SS				-.079
DJ x JC x SS				.026
WFC x JC x SS				-.043
FWC x JC x SS				.039
R^2	.008	.069	.085	.089
ΔR^2	.008	.061	.017	.003
F change	2.21	9.05***	1.57	.648
Df	4,1120	8,1112	13,1099	6,1093

* $p < .05$; ** $p < .01$; *** $p < .001$

5.8 Predictors of psychological wellbeing

The results of the analysis as presented in Table 5.6, illustrate that, in Step 1 of the analysis, as predicted, demographic predictors alone did not account for a significant amount of variance in psychological wellbeing. In Step 2, entering all the predictor variables in the prediction model explained 9.9% of the variance in psychological wellbeing, $F(12,1112) = 10.92$, $p < .001$. However, only three predictor variables were statistically significant independent predictors of psychological wellbeing: namely procedural justice ($\beta = .078$, $SE = .032$, $p < .05$), FWC ($\beta = -.177$, $SE = .032$, $p < .001$) and job control ($\beta = .184$, $SE = .029$, $p < .001$). None of the interactive predictors were statistically significant in Step 3 and Step 4 of the analysis, hence no evidence in support for the moderating effect of job control and social support were evident in the present data.

Table 5. 6. Hierarchical multiple regression analysis predicting psychological wellbeing from job demands, organisational justice, work family conflict, job control and social support

	Standardised coefficient β			
	Step1	Step 2 <i>Additive Model</i>	Step 3 <i>Interactive Model</i>	Step 4
<i>Control variables</i>				
Gender	.003	-.011	-.007	-.003
Age	.023	.021	.026	.024
Ethnic	.033	.047	.043	.044
Marital status	.064*	.042	.036	.038
<i>Predictor variables</i>				
Job demands (JD)		.026	.027	.013
Procedural justice (PJ)		.078*	.087*	.078*
Interactional justice (IJ)		-.049	-.068	-.081*
Distributive justice (DJ)		.050	.046	.050
Work to family conflict (WFC)		-.007	-.002	-.008
Family to work conflict (FWC)		-.177***	-.184***	-.181***
Job control (JC)		.184***	.179***	.164***
Social support (CS)		.062	.069	.066
<i>Two-way interaction</i>				
JD x JC			-.006	.005
JD x SS			-.021	-.024
JC x SS			-.014	-.018
PJ x JC			-.003	.000
PJ x SS			.071	.059
IJ x JC			-.022	-.017
IJ x SS			-.118**	-.129**
DJ x JC			-.002	-.002
DJ x SS			.039	.038
WFC x JC			.000	-.007
WFC x SS			-.049	-.040
FWC x JC			-.016	-.014
FWC x SS			-.045	-.031

Table 5.6. (continued)

Hierarchical multiple regression analysis predicting psychological wellbeing from job demands, organisational justice, work family conflict, job control and social support

	Step1	Standardised coefficient β		
		Step 2	Step 3	Step 4
		<i>Additive Model</i>	<i>Interactive Model</i>	
<hr/>				
<i>Three-way interaction</i>				
JD x JC x SS				.047
PJ x JC x SS				.037
IJ x JC x SS				.030
DJ x JC x SS				.013
WFC x JC x SS				.036
FWC x JC x SS				-.045
R^2	.007	.105	.121	.126
ΔR^2	.007	.099***	.015	.005
F change	1.92	15.31***	1.49	1.07
Df	4,1120	8,1112	13,1099	6,1093

* $p < .05$; ** $p < .01$; *** $p < .001$

Overall, investigating the additive, main and moderating effects on the wellness indicators, the results demonstrated that job satisfaction and positive affect are the most dominant wellbeing indicators explained by the predictor variables. Job satisfaction, a work related wellbeing was established as the most investigated indicator in JDC and JDCS models. Positive affect tends to capture the positive affect of workers related to non-work related aspects which found to be significant compared to other non-work indicators.

Table 5.7 shows the overall hierarchical multiple regression analysis predicting employee wellbeing from job demands, organisational justice, work family conflict, job control and social support, testing the main, additive and moderating effects hypotheses.

Table 5. 7. Hierarchical multiple regression analysis predicting employee wellbeing from job demands, organisational justice, work family conflict, job control and social support

Predictors	Wellbeing indicators					
	Work related wellbeing		Non-work related wellbeing			
	Job satisfaction	Job affective wellbeing	Life satisfaction	Positive affect	Negative affect	Psychological wellbeing
Step 1						
Gender	-.039	-.009	-.082**	.133***	-.019	.003
Age	.028	-.012	.105**	.025	-.064	.023
Ethnic	-.120***	-.036	.032	.039	-.031	.033
Marital status	-.041*	.040	.076*	-.047	-.031	.064*
R² and ΔR²	.019/.019***	.003/.003	.026/.026***	.020/.020***	.008/.008	.007/.007
Step 2						
Job demands (JD)	-.097***	-.137***	-.009	.019	.051	.026
Procedural justice (PJ)	.069*	.058	.053	.094**	-.004	.078*
Interactional justice (IJ)	.132***	.061	.010	.070	-.063	-.049
Distributive justice (DJ)	.213***	-.006	.177***	.045	.023	.050
Work to family conflict (WFC)	-.166***	-.221***	-.049	-.003	.115**	-.007
Family to work conflict (FWC)	-.104***	.008	-.052	-.106**	.136***	-.177***
Job control (JC)	-.015	.053	-.005	.228***	.006	.184***
Social support (SS)	.183***	.037	.039	.065	.017	.062
R² and ΔR²	.373/.354***	.122/.119***	.093/.066***	.162/.142***	.069/.061***	.105/.099***

Notes: * $p < .05$ ** $p < .01$ *** $p < .001$; JD = Job demands; JC = Job control; SS = Social support; PJ = Procedural justice; IJ = Interactional justice; DJ = Distributive justice; WFC = Work to family conflict; FWC = Family to work conflict

Table 5.7. (continued)

Hierarchical multiple regression analysis predicting employee wellbeing from job demands, organisational justice, work family conflict, job control and social support

Predictors	Wellbeing indicators					
	Work related wellbeing		Non-work related wellbeing			
	Job satisfaction	Job affective wellbeing	Life satisfaction	Positive affect	Negative affect	Psychological wellbeing
Step 3						
JD x JC	.003	-.001	.001	-.024	.014	-.006
JD x SS	.125***	.017	.036	.033	-.032	-.021
JC x SS	.046	-.010	.008	-.050	.031	-.014
PJ x JC	-.014	-.035	-.047	-.034	-.049	-.003
PJ x SS	.043	.045	.064	.070	.006	.071
IJ x JC	-.068*	-.051	-.034	.012	-.049	-.022
IJ x SS	-.049	-.009	-.060	.029	-.005	-.118*
DJ x JC	.049	.076*	-.008	.088**	.062	-.002
DJ x SS	-.008	-.076*	.022	.004	.087*	.039
WFC x JC	-.022	-.035	-.028	-.010	.052	-.000
WFC x SS	-.053	.010	-.053	-.094*	.014	-.049
FWC x JC	.023	.009	-.037	-.010	-.026	-.016
FWC x SS	-.046	-.012	.022	.001	.002	-.045
R² and ΔR²	.399/.025***	.132/.011	.105/.012	.190/.029***	.085/.017	.121/.015
Step 4						
JD x JC x SS	.006	.049	.027	-.052	-.010	.047
PJ x JC x SS	.054	-.083*	.045	.011	-.015	.037
IJ x JC x SS	-.001	.069	.087	.038	.013	.030
DJ x IJ x SS	.025	.016	-.027	-.022	-.079	.013
WFC x JC x SS	.043	.025	.029	.061	.026	.036
FWC x JC x SS	-.073	-.062	-.004	-.073	-.043	-.045
R² and ΔR²	.404/.005	.139/.007	.112/.007	.194/.004	.089/.003	.126/.005

Notes: * $p < .05$ ** $p < .01$ *** $p < .001$; JD = Job demands; JC = Job control; SS = Social support; PJ = Procedural justice; IJ = Interactional justice; DJ = Distributive justice; WFC = Work to family conflict; FWC = Family to work conflict

In sum, the results partially support the predictions made by the JDCS model regarding the predictor variables (job demands, job control and social support; procedural, interactional and distributive justice; and work to family and family to work conflict). These predictors, when combined additively, predict employee wellbeing indicators. Examination of individual predictors reveals that all predictors except job control were statistically significant *independent* predictors of job satisfaction. The substantial portion of the variance (35.4 %) in job satisfaction was explained by the predictor variables. All prediction models with full predictors (Step 2 of the equation analysis) reached statistical significance even though the proportions of the variance of other wellbeing indicators (job affective wellbeing, life satisfaction, positive affect, negative affect and psychological wellbeing) may not be substantial. Therefore, H1 regarding the test of the prediction model of wellbeing as a whole (additive effect) received substantial support.

Examination of the main effect of predictor on wellbeing outcomes reveals the following results:

- a) job demands negatively predict job satisfaction and job affective wellbeing;
- b) procedural justice significantly predicts job satisfaction, positive affect and psychological wellbeing;
- c) interactional justice significantly predicts job satisfaction;
- d) distributive justice significantly predicts job satisfaction and life satisfaction;
- e) WFC significantly predicts lower levels of job satisfaction and job affective wellbeing and higher levels of negative affect;
- f) FWC significantly predicts lower levels of job satisfaction, positive affect, psychological wellbeing and higher levels of negative affect;
- g) job control significantly predicts positive affect and psychological wellbeing; and
- h) social support significantly predicts job satisfaction.

Consequently, the main effects hypotheses H2, H3, H4, H5, H6, H7, H8 and H9 were partially supported by the findings.

Whenever cross-product terms (two-way interaction terms) were added to the equation models in Step 3, most of the interaction terms were found to be not statistically significant. All together, this study included 91 two-way interaction effects (predictor variables with each wellbeing indicator), of which only four showed statistically significant graphical interactions. The results provide substantial evidence against two-way interactions hypotheses in most wellbeing indicators, except for the following interactive effects of:

- a) interactional justice and job control in predicting job satisfaction;
- b) distributive justice and job control in predicting positive affect;
- c) job demands and social support in predicting job satisfaction; and
- d) WFC and social support in predicting positive affect.

In summary, the two-way interaction effects received little support in the current findings in which only four interaction terms revealed significant moderating effects. Most of the results related to testing two-way interactive effect of predictors in predicting wellbeing indicators were insignificant. Generally, the inclusion of the interaction term in Step 3 resulted in a negligible amount of increased variance in explaining employee wellbeing indicators. Therefore, it can be concluded that the results partially support H11b, H11c, H13 and H15a, and fail to support H10, H11a, H12a, H12b, H14a, H14b, H14c and H15b which postulated the contribution of job control and social support as moderator variables in the relationship between: (a) job demands and wellbeing; (b) organisational justice (procedural, interactional and distributive justice) and wellbeing; and (c) work family conflict (WFC and FWC) and wellbeing.

Adding cross-product terms (three-way interactions) in Step 4 did not bring any significant increment to the model of employee wellbeing prediction. The findings did not find any significant three-way joint interactive effects of variables in predicting wellbeing indicators. Thus, the related three-way interaction hypotheses, including H16, H17a, H17b, H17c, H18a and H18b, were not supported.

Overall, the results of the main effects revealed substantial support for the hypotheses. Job demands, job control and social support, organisational justice (procedural, interactional and distributive) and work family conflict (WFC and FWC) were found to predict certain wellbeing indicators as independent predictors. The results of the moderating effects of job control and social support, found only in four occasions (interactional justice x job control on job satisfaction; distributive justice x job control on positive affect; job demands x social support on job satisfaction; and WFC x social support on positive affect), did not provide convincing evidence in support of the moderating effect. Similarly, three-way joint interactive effects were not powerful enough to achieve statistically significant increments in the variance of the wellbeing outcomes in the regression models. Thus, the JDC model and the JDCS model that are being replicated and used in this study involving Malaysian organisations received little support from the present data. A summary of the results of testing the hypotheses in the current study is presented in Table 5.8.

Table 5. 8. Summary of results of hypotheses testing

	Hypothesis	
	Hypothesis on additive effect	Results
H1	Psychological job demands, job control and social support; procedural, interactional, and distributive justice; and work to family and family to work conflict combine together significantly predicts employee wellbeing (JS, JAWB, LS, PA, NA, PWB).	Supported
	Hypothesis on main/direct effects	
H2	Job demands negatively predict employee wellbeing (JS, JAWB, LS, PA, NA, PWB).	Partially supported
H3	Job control positively predicts employee wellbeing (JS, JAWB, LS, PA, NA, PWB).	Partially supported
H4	Social support positively predicts employee wellbeing (JS, JAWB, LS, PA, NA, PWB).	Partially supported
H5	Procedural justice positively predicts employee wellbeing (JS, JAWB, LS, PA, NA, PWB).	Partially supported
H6	Interactional justice positively predicts employee wellbeing (JS, JAWB, LS, PA, NA, PWB).	Partially supported
H7	Distributive justice positively predicts employee wellbeing (JS, JAWB, LS, PA, NA, PWB).	Partially supported
H8	WFC negatively predicts employee wellbeing (JS, JAWB, LS, PA, NA, PWB).	Partially supported
H9	FWC negatively predicts employee wellbeing (JS, JAWB, LS, PA, NA, PWB).	Partially supported

Note: JS = Job satisfaction; JAWB = Job affective wellbeing; LS = Life satisfaction; PA = Positive affect; NA = Negative affect; PWB = Psychological wellbeing

Table 5.8. (continued)
Summary of results of hypotheses testing

	Hypothesis on moderating effect of job control (Two-way interaction)	Results
H10	Job control will moderate the relationship between job demands and employee wellbeing (JS, JAWB, LS, PA, NA, PWB). <i>(The negative predictor relationship between job demands and employee wellbeing will be stronger for employees with low job control).</i>	Not supported
H11a	Job control will moderate the relationship between procedural justice and employee wellbeing (JS, JAWB, LS, PA, NA, PWB). <i>(The positive predictor relationship between procedural justice and employee wellbeing will be stronger for employees with high job control).</i>	Not supported
H11b	Job control will moderate the relationship between interactional justice and employee wellbeing (JS, JAWB, LS, PA, NA, PWB). <i>(The positive predictor relationship between interactional justice and employee wellbeing will be stronger for employees with high job control).</i>	Partially supported
H11c	Job control will moderate the relationship between distributive justice and employee wellbeing (JS, JAWB, LS, PA, NA, PWB). <i>(The positive predictor relationship between distributive justice and employee wellbeing will be stronger for employees with high job control).</i>	Partially supported
H12a	Job control will moderate the relationship between WFC and employee wellbeing (JS, JAWB, LS, PA, NA, PWB). <i>(The negative predictor relationship between WFC and employee wellbeing will be stronger for employees with low job control).</i>	Not supported

Note: JS = Job satisfaction; JAWB = Job affective wellbeing; LS = Life satisfaction; PA = Positive affect; NA = Negative affect; PWB = Psychological wellbeing

Table 5.8. (continued)
Summary of results of hypotheses testing

	Hypothesis on moderating effect of job control (Two-way interaction)	Results
H12b	Job control will moderate the relationship between FWC and employee wellbeing (JS, JAWB, LS, PA, NA, PWB). <i>(The negative predictor relationship between FWC and employee wellbeing will be stronger for employees with low job control).</i>	Not supported
	Hypothesis on moderating effect of social support (Two-way interaction)	
H13	Social support will moderate the relationship between job demands and employee wellbeing (JS, JAWB, LS, PA, NA, PWB). <i>(The negative predictor relationship between job demands and employee wellbeing will be stronger for employees with low social support).</i>	Partially supported
H14a	Social support will moderate the relationship between procedural justice and employee wellbeing (JS, JAWB, LS, PA, NA, PWB). <i>(The positive predictor relationship between procedural justice and employee wellbeing will be stronger for employees with high social support).</i>	Not supported
H14b	Social support will moderate the relationship between interactional justice and employee wellbeing (JS, JAWB, LS, PA, NA, PWB). <i>(The positive predictor relationship between interactional justice and employee wellbeing will be stronger for employees with high social support).</i>	Not supported
H14c	Social support will moderate the relationship between distributive justice and employee wellbeing (JS, JAWB, LS, PA, NA, PWB). <i>(The positive predictor relationship between interactional justice and employee wellbeing will be stronger for employees with high social support).</i>	Not supported

Note: JS = Job satisfaction; JAWB = Job affective wellbeing; LS = Life satisfaction; PA = Positive affect; NA = Negative affect; PWB = Psychological wellbeing

Table 5.8. (continued)
Summary of results of hypotheses testing

	Hypothesis on moderating effect of social support (Two-way interaction)	Results
H15a	Social support will moderate the relationship between WFC and employee wellbeing (JS, JAWB, LS, PA, NA, PWB). <i>(The negative predictor relationship between WFC and employee wellbeing will be stronger for employees with low social support).</i>	Partially supported
H15b	Social support will moderate the relationship between FWC and employee wellbeing (JS, JAWB, LS, PA, NA, PWB). <i>(The negative predictor relationship between job demands and employee wellbeing will be stronger for employees with low social support).</i>	Not supported
	Hypothesis on moderating effect of job control and social support (Three-way interaction)	
H16	Social support will moderate the effects of high job demands and low levels of job control on employee wellbeing.	Not supported
H17a	Social support will moderate the effects of perceived low procedural justice and low levels of job control on employee wellbeing.	Not supported
H17b	Social support will moderate the effects of perceived low interactional justice and low levels of job control on employee wellbeing.	Not supported
H17c	Social support will moderate the effects of perceived low distributive justice and low levels of job control on employee wellbeing.	Not supported
H18a	Social support will moderate the effects of high WFC and low levels of job control on employee wellbeing.	Not supported
H18b	Social support will moderate the effects of high FWC and low levels of job control on employee wellbeing.	Not supported

Note: JS = Job satisfaction; JAWB = Job affective wellbeing; LS = Life satisfaction; PA = Positive affect; NA = Negative affect; PWB = Psychological wellbeing

5.9 Additional Analysis

Although not central to the main purpose of investigating the research hypotheses, gender differences in predictor variables (t-tests) and differences in all wellness indicators by key demographic variables were analysed (MANOVA and ANOVA).

5.9.1 Gender and all predictor variables

Table 5.9 displays the mean values, standard deviations and t-test results for males and females. Independent sample t-tests were used to analyse the mean difference between genders. The results indicated that there was no statistically significant gender difference in almost all variables except for job control, procedural justice, life satisfaction and positive affect.

Table 5. 9. Mean, standard deviation and t-test^a of study variables according to gender

Variables	Male (<i>n</i> = 536)		Female (<i>n</i> =589)		<i>t</i>	Sig.	eta
	Means	<i>SD</i>	Means	<i>SD</i>			
Job demands	33.79	4.31	33.88	4.24	-.36	n.s	1.15
Job control	38.74	4.42	36.98	4.87	6.32***	.000	0.03
Social support	23.48	3.32	23.27	3.33	1.07	n.s	1.02
Procedural	24.46	4.16	25.42	4.38	-3.75***	.000	0.01
Interactional	21.07	3.66	20.74	3.78	1.46	n.s	1.89
Distributive	14.84	4.30	15.23	4.36	-1.51	n.s	2.03
WFC	18.26	7.11	18.38	7.63	-.27	n.s	6.49
FWC	15.62	6.66	15.25	6.54	.93	n.s	7.70

All are significant at * $p < .05$; *** $p < .001$

^a = independent-samples t-test

Psychosocial work environment variables including job demands and social support did not show any statistically significant gender difference ($t(1123) = -.36, p = .720$ and $t(1123) = 1.07, p = .284$, respectively). However, there was a statistically significant gender difference regarding job control between men ($M=38.74, SD=4.42$) and women ($M= 36.98, SD= 4.87$), $t(1123)= 6.32, p < .001$. Despite reaching the statistically significant difference, the magnitude of the means difference was very small

(eta-squared = .03). No significant differences between males and females were found for interactional and distributive justice ($t(1123) = 1.46, p = .143$ and $-1.51, p = .132$, respectively), whereas women showed a significantly higher perception of procedural justice ($M=25.42, SD=4.38$) than men ($M=24.46, SD=4.16$), $t(1163) = -3.75, p < .001$. However, the magnitude of the means difference was small. The effect size calculated using eta-squared was 0.01. In terms of work family conflict, bi-directional conflict (WFC and FWC) did not show significant difference, ($t(1123) = -.27, p = .786$, and $t(1123) = .93, p = .355$, respectively).

5.9.2 Gender and wellbeing

A MANOVA was conducted to investigate the gender differences in employee wellbeing. Six wellness indicators were tested: job satisfaction, job affective wellbeing, life satisfaction, positive affect, negative affect and psychological wellbeing. There was a statistically significant difference between males and females on the combined dependent variables. Detailed investigation of each of the wellness indicators revealed that only life satisfaction $F(1, 1123) = 3.93, p < .05$; partial eta squared = .003 and positive affect $F(1, 1123) = 19.51, p < .001$; partial eta squared = .02 reach statistical significance. Female employees ($M = 22.64, SD = 5.76$) reported higher levels of life satisfaction than males ($M = 21.96, SD = 5.73$), whereas male employees ($M = 33.45, SD = 5.84$) reported higher levels of positive affect than female colleagues ($M = 31.88, SD = 6.04$).

5.9.3 Age and wellbeing

With regard to age differences in employee wellbeing, MANOVA revealed a statistically significant difference between employees' ages on the combined wellness indicators, $F(6, 1118) = 2.30, p < .01$; Wilks' Lambda = .96; partial eta squared = .012.

A one-way ANOVA with post-hoc test compared the scores on wellbeing indicators. There were four age groups of employees: Group 1 – 18 to 29 years; Group 2 – 30 to 39 years; Group 3 – 40 to 49 years; and Group 4 – 50 to 59 years. The results showed that there were statistically significant differences in the mean total score of

employee life satisfaction ($F(3, 1121) = 6.95, p < .001$) and negative affect ($F(3, 1121) = 2.88, p < .05$).

Post-hoc comparison using Scheffé's tests revealed that the mean scores of life satisfaction for Group 1 ($M=20.98, SD=6.06$) differed from Group 2 ($M=22.61, SD=5.70, p < .01$) and Group 3 ($M=22.89, SD=5.42, p < .01$) but not for Group 4 ($M=23.60, SD=5.07, p = .186$). However, the effect size calculated using *eta*-squared was very small (.02). There was no statistically significant difference between the mean scores of life satisfaction for the age group of 30–39 years, 40–49 years and 50–59 years.

Scheffé's post-hoc tests indicated that there was no significant difference between the mean score of negative affect for all age groups. Despite reaching the statistical significance of *ANOVA*, the actual difference in mean score between groups was very small (*eta*-squared = .01).

5.9.4 Ethnic group and wellbeing

This section analyses the difference in the mean total scores of wellbeing indicators in terms of three main ethnic groups in the current study: Group 1 – Malay, Group 2 – Chinese, and Group 3 – Indian. Ethnic group was entered into a MANOVA with six wellness indicators as dependent variable. Results revealed that there was a statistically significant difference between ethnic groups on wellbeing, $F(6, 1118) = 3.01, p < .001$; Wilks' Lambda = .95; partial *eta* squared = .02.

An ANOVA inspection of the wellness indicator for each group showed that only job satisfaction and job affective wellbeing differed depending on ethnic background, $F(3,1121)=6.17, p<.001$ and $F(3,1121)=4.12, p<.01$, respectively. Minority groups in this study (Indian-Malaysians) reported higher levels of work-related wellbeing. For example, Scheffé's post-hoc tests revealed that Indian-Malaysians ($M=138.95, SD=17.38, p<.01$) reported significantly higher levels of job satisfaction compared to Malays ($M= 131.58, SD=19.63$). Calculating *eta*-squared, the magnitude of

the difference was considered to be a small effect (.02). However, Chinese-Malaysians ($M=137.44$, $SD=18.58$) were not different from Indian-Malaysians or Malays.

Furthermore, in terms of job affective wellbeing, Indian-Malaysians ($M=128.91$, $SD=21.78$) reported significantly higher levels of job affective wellbeing compared to Malays ($M=120.75$, $SD=24.70$, $p<.01$) and Chinese-Malaysians ($M=116.83$, $SD=20.67$, $p<.05$) with small effect of *eta*-squared (.01). Malays did not differ significantly from Chinese-Malaysians.

5.9.5 Marital status and wellbeing

A multivariate analysis revealed that differences in marital status resulted in a statistically significant difference in the wellness indicator, $F(6, 1118) = 3.01$, $p < .01$; Wilks' Lambda = .97; partial eta squared = .012.

However, employing ANOVA, it was found that this statistically significant difference in the mean total scores of wellbeing indicators according to marital status only applied to life satisfaction $F(3,1121)=6.10$, $p<.001$.

Detailed inspection of the Scheffé post-hoc test results indicated the mean scores of life satisfaction for Group 1 – married employees ($M=22.67$, $SD=5.59$, $p<.01$) differ significantly from Group 2 – single employees ($M=21.21$, $SD=6.06$) and were not different from Group 3 – divorced ($M=20.09$, $SD=6.73$) and Group 4 – widowed ($M=24.75$, $SD=4.00$). However, the effect size was small, as evidenced by the *eta*-squared value (.02).

In sum, MANOVA and ANOVA with post-hoc analysis revealed there were no statistically significant differences in mean scores of wellbeing indicators in terms of gender, age, ethnic group and marital status. A few did reveal significant differences such as life satisfaction and positive affect with gender; life satisfaction and negative affect with age; job satisfaction and job affective wellbeing with ethnic group; and life satisfaction with marital status, even though with small size effect.

5.6 Chapter Summary

This chapter presented the results of hypotheses testing as well as additional analysis (t-tests, MANOVAs and ANOVAs with Scheffé's post-hoc tests).

The results indicated that the prediction models comprising job demands, job control, and social support, organisational justice (procedural, interactional and distributive) and work family conflict (WFC and FWC) effectively predict the wellness indicators. Among wellbeing indicators, the prediction model explained the largest portion of the variance in job satisfaction (35.4%). In addition, all predictor variables except job control were statistically significant independent predictors of job satisfaction. However, the prediction models were least effective in predicting non-work related wellbeing indicators such as positive and negative affects because the proportions of the variance explained by the prediction models were small. Thus, the efficacy of the prediction models, including all predictors in predicting wellbeing was mostly supported. Most of the stipulated data concerning the main effects were partially supported in the study. Job demands, WFC and FWC were related to low levels of employee wellbeing. On the contrary, job control, social support, procedural, interactional and distributive justices were found to predict employee wellbeing.

However, the two-way moderating effects of job control and predictors and the two-way moderating effect of social support and predictors on wellbeing indicators were mostly not significant. Only a few moderating effects were found: a) the moderating effect of job control and distributive justice positively predicted workers' positive affect; b) the interactive effect of job control and interactional justice, in which employees with low job control and high interactional justice predicted more satisfaction in job compared to employees with high job control; c) the interactive effect of social support and job demands on job satisfaction, indicated that the negative perception of high job demands on job satisfaction was mitigated by having social support in the workplace; and d) the moderating effect of social support and work to family conflict predicted positive affect. However, this relationship was a *reverse buffering* effect. The employees

with high WFC reported higher levels of positive affect with low social support in the workplace.

With regard to higher-level moderating effects, results revealed that adding the three-way interactive predictors into the regression model did not produce a significant *additional* increment of variance in wellbeing. In other words, there was no evidence in support of higher level moderating effects among predictors.

The results and analyses section ended with additional analysis using t-tests, MANOVAs and ANOVAs. Although it was not the main hypothesis to be tested, the results contribute to the literature related to the study. In terms of gender, there was no statistically significant difference in the majority of the predictor variables studied, except for job control and procedural justice. MANOVA and ANOVA with Scheffe's post-hoc tests revealed that there was no statistically significant difference in almost all wellbeing indicators according to gender, ethnic group, age and marital status. However, a few results showed that there was a statistically significant difference in certain wellbeing indicators in terms of age, ethnic group and marital status. For example, results revealed a statistically significant difference in mean scores of: a) life satisfaction and positive affect according to gender; b) life satisfaction and negative affect according to age; c) job satisfaction and job affective wellbeing according to ethnic group; and d) life satisfaction according to marital status. In the following chapter, the results, implications and limitations of the study are discussed, and the study concludes with an outline of the contributions made and recommended areas for future research.

CHAPTER 6: DISCUSSION AND CONCLUSIONS

6.1 Introduction

The aim of the current research was to investigate the reliable predictors of employee wellbeing in Malaysia. This research utilizes several predictor variables including the key dimensions of the Job Demand-Control-Support (JDCS) model (job demands, job control and social support), organisational justice (procedural, interactional and distributive justice) and work family conflict (WFC and FWC) as the predictors. Firstly, the efficacy of a multiple regression model consisting of a set of predictors was tested (the additive hypothesis) followed by the evaluation of individual predictors on wellbeing indicators (work related wellbeing: job satisfaction and job affective wellbeing; non-work related wellbeing: life satisfaction, positive affect, negative affect and psychological wellbeing). In addition, the moderating effect of job control and social support on wellbeing was examined by creating the interaction terms with a pair of predictors.

To date, since few studies have focused on worker wellbeing in Asian countries, the current investigation was planned to investigate the predominant Western-developed models of worker wellbeing in an Eastern culture with multi-ethnic background respondents. In today's globalized world where transmigration across borders is common, Malaysia is no exception: the country consists of different ethnic groups which represent a modern, moderate Muslim nation (PriceWaterhouseCoopers, 2006) and with new immigrant workers attracted by recent economic booms. The current study is significant in light of the review by Liu and Spector (2005) which found that employee strain and wellbeing are in part related to country and culture.

The purpose of this chapter is to present discussion and draw conclusions from the results of the data analysis. An overview of the findings begins with the brief recapitulation of the research questions followed by discussion on hypotheses. Later in

this chapter, the implications of the current study, taking into account the theoretical and practical perspectives in the literature are presented. Finally, the limitations of the study, suggestions for future research considerations and an overall conclusion are provided.

6.2 Overview of the Study Findings

The main aim of this study was to examine whether the psychosocial work environment (job demands, job control, social support), organisational justice (procedural, interactional and distributive justice) and work family conflict (WFC and FWC) were reliable predictors of Malaysian workers' wellbeing. The study applied the JDC and JDCS variables and incorporated organisational justice and work family conflict variables.

Discussion of the current findings and implications for each research question is presented below.

6.2.1 Psychosocial work environment (job demands, job control, social support), organisational justice (procedural, interactional and distributive) and work family conflict (work to family conflict and family to work conflict) and employee wellbeing (Research Question 1)

The findings of the current study were that the combination of psychosocial work environments (job demands, job control and social support), organisational justice (procedural, interactional and distributive justice) and work family conflict (WFC and FWC) effectively predict Malaysian employees' wellbeing, particularly their job satisfaction. Since the current findings reveal that other predictor variables (organisational justice and work family conflict) also made independent contributions and add to the overall effect on employee job satisfaction, these findings further support the claim made by Johnson (1989) and Parkes, Mendham and von Rabenau (1994) that Karasek's model is too simple. Karasek's model solely focused on the key dimensions of psychosocial work variables without considering other work and non-work variables.

The current findings also expand the findings of previous studies in predicting employee wellbeing which mostly focused on separate variables including psychosocial

work environment (Gilbreath & Benson, 2004; van der Doef & Maes, 1999), organisational justice (Lindfors et al., 2007), work family conflict (Brough & O'Driscoll, 2005), along with the independent contribution of each of these variables on employee wellbeing; and the investigation of two variables such as psychosocial work environment and work family conflict (Pal & Saksvik, 2008) and psychosocial work environment and organisational justice (Lawson et al., 2009; Rodwell et al., 2009). Since, to date (based on search engine - online journal such as Academic Search Premier, PsycINFO and PsycARTICLES), it does not appear that any research has considered incorporating the psychosocial work environment including JDCA variables, organisational justice and work family conflict as a reliable predictor of employee wellbeing, as the current study has done. As a consequence, the findings of this study contribute to the prediction of wellbeing, particularly in the context of Malaysian employees.

These results support the conclusion that JDCA variables are the significant factors that employees in this study perceived to be affecting their job satisfaction. Issues concerning job demands and social support are observed to help these employees maintain satisfaction at work and appeared to be a significant factor in promoting wellbeing not only among Western workers, but also among Malaysian employees. This indicates that the employers, particularly those implicated in the present study, need to monitor these work characteristics beyond the other two sets of predictors (organisational justice and work family conflict) to ensure that these will not undermine the wellbeing of employees.

The current findings also highlight the contribution of organisational justice and work family conflict to predicting employee wellbeing. The findings suggest that in addition to the psychosocial work environment that they experience in daily working life, Malaysian employees also perceived that the experience of positive perception of organisational procedures and distribution of work outcomes in the workplace was another significant predictor of job satisfaction, particularly in the context of this study where respondents are working in a multi-ethnic society.

The work family issue is a significant aspect in the society of Malaysia due to the collectivist prioritisation of family life. Contrary to the attitude to be expected of workers in individualist societies that have separated jobs and private lives, the Malaysian employees in this study understood that work matters could intrude into their family lives and at the same time they also expected that the organisation would be concerned about any family matters that needed to be dealt with during working hours (Hofstede, 1984). Therefore, this study found that incorporating work family conflict can better explain the prediction of employee wellbeing rather than a focus mainly on psychosocial work environment or organisational justice, consistent with the argument by Fujishiro (2005) and Loretto et al. (2005).

In conclusion, the current study establishes a significant research model for the prediction of employee wellbeing in Malaysia, consisting of eight predictor variables including psychosocial work environment (job demands, job control and social support), organisational justice (procedural, interactional and distributive justice) and work family conflict (WFC and FWC).

6.2.2 Psychosocial work environment (job demands, job control, social support) and employee wellbeing (Research Question 2)

The main effects of job demands, job control and social support on wellbeing in the current study were partially confirmed. The current study found evidence supporting the negative impact of increased job demands in reducing worker wellbeing and the positive impact of social support and job control on employee wellbeing. In particular, the findings indicated that job demands and social support were associated with work related wellbeing (job satisfaction and job affective wellbeing) which is consistent with previous studies in Western contexts such as Macklin et al. (2006) and Ter Doest, Maes and Gebhardt (2006). Malaysian employees perceived that work stressors (job demands) in particular have a negative consequence on their wellbeing related to work but wellbeing outside work was not affected. On the other hand, job control here predicted non-work related wellbeing (positive affect and psychological wellbeing) which is

inconsistent with Western findings (e.g. Pomaki & Anagnostopoulou, 2003; Rasku & Kinnunen, 2003). In the Malaysian workplace, it appears that the job control plays a lesser role in predicting work related wellbeing.

In general, the literature reveals that job characteristics (job demands, job control and social support) affect employee wellbeing. However, there is some debate over the conception of job characteristics perceived in different cultures and the relationship of these different perceptions of job characteristics to employee wellbeing. For example, Erez (2010) argues that perceptions of the job characteristics differ due to cultural differences regarding job definitions and work processes. Thus, it is reasonable to predict that employees from different cultural backgrounds perceive different job characteristics as being crucial to their wellbeing.

Verhoeven et al. (2003) advocate investigation of the relationship between the JDCS variables, and wellness and health in non-European countries (e.g., African, Latin American or Asian workplaces) where concepts such as control or social support have very different connotations. Western studies established that job control (the extent to which employees can control their work environment according to their work demands, abilities, needs and circumstances) is associated with employee wellbeing (see Ross & Mirowsky, 1989; Wall, Jackson, Mullarkey & Parker, 1996). Contrary to these Western studies, the current findings showed that, although job control was related to employees' non-work related wellbeing (positive affect and psychological wellbeing), it did not predict work related wellbeing. That is, Malaysian employees in the current study perceived the need for job control only for their personal wellbeing, but did not perceive it as significant to their workplace wellbeing.

This may imply that there is a different conception of job control in Asian cultures, as a few studies have found that the lack of job control did not affect individuals in collectivistic societies (such as, for instance, the Chinese) as much as it affected those in individualistic society (e.g. the US) (Nauta, Liu & Li, 2010; Liu & Spector, 2005; Liu, Spector and Shi, 2007). The finding that job control was not

significantly related to work related wellbeing in this study is further supported by a qualitative study that used an individual interview and focus group discussion within the collectivistic culture of Malaysia (Idris, Dollard & Winefield, 2011).

In addition to cultural differences, the lack of a relationship between job control and work-related worker wellbeing might be attributed to the nature of work performed by the respondents. For example, in the Malaysian professional context, Huda et al. (2004) found that a lack of job control was an important factor contributing to employees' job strain and satisfaction at work. The professionals and lecturers they studied, whose work requires setting goals, completing challenging tasks with minimal supervision and engaging in intellectual development, preferred a strong sense of control. However, job control had limited appeal to employees in the manufacturing sector in the current study (NB: employees from different position levels - assembly workers, foremen and supervisors - who perform their tasks in groups). These different preferences regarding job control clearly relate to the different types of work, one demanding individual excellence (academic), the other demanding cooperative excellence (factory production).

In the current study, social support from supervisors and co-workers played a significant role in employees' job satisfaction, which is consistent with Macklin et al. (2006). However, in the current findings there is no evidence to identify any association between social support and non-work related wellbeing outcomes. The provision of advice, assistance or feedback from supervisors and co-workers was able to promote satisfaction at work. In the Malaysian work context, Idris et al. (2010) also found that discussion with superiors whenever a problem related to work occurred was regarded as support by employees. This is due to the nature of Eastern cultures which demand more respect to superiors (Lu, Cooper, Kao & Zhou, 2003). Furthermore, Spector et al. (2007) found that people in collectivist societies have greater attachment to their co-workers when sharing the experience of adverse conditions in the workplace. This provides opportunities to express distressing emotions, receive encouragement, maintain a positive outlook at work and continue to achieve productive job outcomes. Employees in

the current study perceived support from co-workers as a means of sharing thoughts that enable them to promote positive feelings and assist in outweighing the stress and strain of repetitive work (Cohen, 1988; Pavot, Diener & Fujita, 1990). However, the lack of a relationship between social support and other wellbeing outcomes might be explained by the mismatch of the source of social support with the non-work related wellbeing outcomes. For example, individuals' subjective wellbeing and psychological wellbeing most probably rely on support derived beyond the workplace, particularly, support from spouse and family.

The inconsistencies in findings in the Western and Asian contexts regarding employees' perception of how psychosocial work environment variables affect employee wellbeing might be attributed to cultural differences. According to Dilworth-Anderson and Marshall (1996) and Dunkel-Schetter, Sagrestano, Feldman and Killingsworth (1996), these inconsistencies are due to cultural differences in how job characteristics are constructed within specific cultures. For instance, in the work context, the current study found that social support is the most dominant aspect of the psychosocial work environment significantly related to employee job satisfaction. Similarly, Pal and Saksvik (2008) found that Indian but not Norwegian employees reported social support in the workplace as a significant job resource relating to employee stress. This is consistent with the present study which found that receiving social support from both supervisor and co-workers is the most valuable predictor of job satisfaction among Malaysian employees. The most likely explanation for this lies in the fact that the perceptions of the Malaysian employees in this study were similar to those of the Indian employees in Pal and Saksvik's study. In both studies, the participants represent Eastern societies and share similarly collectivist cultures. Although job control is a job resource which is significantly related to employees' job satisfaction in the Western context (Pomaki & Anagnostopoulou, 2003; Rasku & Kinnunen, 2003), the current findings revealed the opposite relationship in the Eastern context. This is consistent with Abdullah (1995) who argued that, in a high power distance country like Malaysia, employees accept that superiors have more power, and therefore prefer those superiors to lead them. Indeed, a recent study by Pisanti, van der Doef, Maes, Lazzari

and Bertini (2011) reveals evidence that cross-national respondents (Italian and Dutch) differ in interpreting job characteristics which affect their wellbeing.

6.2.3 Organisational justice (procedural, interactional and distributive) and employee wellbeing (Research Question 3)

Regarding the role of organisational justice in predicting employee wellbeing, the current findings are in agreement with the findings of Findler et al. (2007), Lawson et al. (2009), McFarlin and Sweeney (1992) and Zohar (1995), who found that injustice was associated with a lack of wellbeing. Specifically, the current findings suggest that situations in the workplace, including employee perceptions of fairness of work procedures (procedural justice), the fairness of social interactions (interactional justice), and fairness of work outcomes in pay and promotions (distributive justice) are significant factors related to job satisfaction. This is consistent with an extensive 24 year review by Colquitt et al. (2001) who concluded that job satisfaction is the most significant job outcome related to organisational justice. In addition, the results in the present study showed a significant relationship between organisational justice and other wellbeing outcomes (namely, procedural justice and positive affect and psychological wellbeing; and distributive justice and life satisfaction).

A potential explanation for the link between procedural and employee wellbeing in this study is that employees perceived work-related procedures as being implemented according to specific guidelines which take their considerations into account. In addition, consistent with the Western-based study of Elovainio et al. (2001), employees appreciated the quality of interpersonal treatment available because of the interactional justice of their organisation. These findings are supported by Kivimaki et al. (2003) who established that sound management procedures aspects and positive employee treatment are factors that contribute more significantly to the wellness of employees, than specific concerns about work characteristics, social support and individual personality types.

The current findings could validate the explanation of equity theory (Adams, 1965), as the Malaysian employees were found to be concerned that the work outcomes

(e.g. pay and promotions) that they received were comparable with the inputs they had rendered. Therefore, distributive justice was one of the significant predictors of employee wellbeing (job satisfaction and life satisfaction) in this study. This finding is congruent with the social exchange theory of Blau (1964), in which employees who perceive just treatment from their organisation attribute their wellness and happiness to the organisation, thus indirectly affecting the wellbeing of the organisation. Therefore, the present findings further support the important role of organisational justice in promoting employee health and wellbeing.

Results relating to fairness as a contributor to employee wellbeing in the current study are consistent with Fujishiro's (2005) findings. Similar to her findings, only procedural justice/management fairness was associated with psychological wellbeing. Fujishiro believes that the less substantial association between other fairness variables and psychological wellbeing may be related to other factors such as family relationships. For this reason, the present study incorporated non-work issues (work family conflict) to predict employee wellbeing and found support for the impact of family relationship closely associated to the sense of worker wellbeing.

The positive impact of properly administered organisational justice on employee wellbeing is confirmed by the literature (e.g. Findler et al., 2007; Lawson et al., 2009). However, there are inconsistencies in the findings in previous studies regarding the most influential type of organisational justice (Chu et al., 2005; Lam et al., 2002; Pillai et al., 1999). Among the three types of justice in the current study, distributive justice appeared to be the most significant predictor of employee wellbeing (job satisfaction and life satisfaction), consistent with McFarlin and Sweeney (1992). Interestingly, other Eastern Asian studies involving employees in Singapore, Taiwan, China and Korea reported that procedural justice more significantly affects workers' commitment and job satisfaction than distributive justice (Chu et al., 2005; Leung et al., 1996; Yoon, 1996). A possible explanation for this might be that the majority of these respondents come from countries with Confucian values. On the contrary, respondents in the current study belong to a multi-ethnic society, which is dominated by Malays. In other words, the inconsistencies

in the findings might be attributed to the different cultural values emphasised in different cultural groups as components of organisational justice. In addition, distributive justice, but not procedural justice, was related to the life satisfaction of Malaysian employees in the current study, which is inconsistent with Lambert et al. (2010). This might be explained by the different nature of the current participants' work, as Lambert et al. investigated 160 correctional staff working in a prison where the procedural aspect is a salient aspect.

In addition, distributive justice is easily evaluated by employees (Stecher & Rosse, 2005) especially in the context of this study where the majority of the respondents are assembly workers with low levels of education. Due to its *tangible* outcome, distributive justice was perceived as the most prominent kind of justice in this study. In contrast, the majority of participants in other studies (e.g. Chu et al., 2005; Jamaludin, 2009; Yoon, 1996) undertook higher education and was affected more by procedures than by distributive justice. Jamaludin (2009) stated that different employees have different motivational factors influencing their perceptions of organisational justice. His study reveals that distributive justice is perceived as significant by employees who have material motivations, whereas, procedural justice is perceived as crucial by employees with non-material motivations.

6.2.4 Work family conflict (work to family conflict and family to work conflict) and employee wellbeing (Research Question 4)

As hypothesised, both WFC and FWC were negative predictors of employee wellbeing in this study. These findings corroborate earlier research (Erdwins et al., 2001; Nielson et al., 2001; O'Driscoll et al., 2004; Salami, 2007). The results suggest that work family conflict was a significant stressor to Malaysian as well as to Western workers. In the current study, the majority of respondents were married or had children which raised the responsibility for juggling the demands from both family and work domains regardless of gender. Employees in the current study might feel some conflict between work and family duties such as managing their work demands while feeling

guilty for not spending more time with their families, and vice versa -thus affecting their wellbeing. Although an earlier study in Malaysia by Noor (1999) found that women are primarily responsible for household chores, the available evidence in the current study shows that work family conflict is an issue of concern to both men and women. This may indicate that changes in attitude occurring recently are endorsed by young workers with secondary education as well.

Although work family conflict was significantly related to employee wellbeing (job satisfaction and negative affect), the results revealed that the association of WFC was larger and more strongly related to work context wellbeing (job satisfaction and job affective wellbeing), whereas the association of FWC was more dominantly related to non-work context wellbeing (positive affect, negative affect and psychological wellbeing). This is consistent with Samad's (2006) findings. In other words, the findings imply that work matters affect work related wellbeing and family matters affect non-work related wellbeing.

As expected, since this study focuses on employee wellbeing, Malaysian employees reported experiencing higher levels of WFC than FWC, consistent with previous studies in Malaysia (e.g. Hassan et al., 2010; Razak et al., 2010) as well as in Western cultural settings (O'Driscoll et al., 2004). Since employees managed to handle the family issues and prevent these issues from intervening in their work, it may be that most employees in this study benefitted from informal support (parents, relatives and neighbours) with regard to family matters, similar to the study by Samad (2006) involving 500 non-professional manufacturing workers in Malaysia. The National Population and Family Development Board (2004) reported that 42 to 58 percent of Malaysian families involved family or relatives in child care assistance. In fact, since the majority of the respondents in the current study also involved non-professional workers (supervisors and assembly workers) similar childcare support might be obtained. In contrast, the more affluent employees in this study, especially managers, might seek a different approach in helping them managing FWC, such as gaining assistance from paid domestic helpers (Lau, Hann & Sulaiman, 1996).

Noor (1999 p. 138) reported that “Malaysian women are generally less open, less expressive, more inhibited and timid compared with their western counterparts”. Although women spend more time on household chores and child care than men, due to their cultural expectations, they are expected not to expose the conflicts they are experiencing at home to the workplace. As well as the available support and the cultural expectations as factors that contribute to the lower level of FWC than WFC, one of the other factors that might contribute to the higher levels of WFC than FWC is that employees in this study have more control at home than at work (Frone, 2003). In other words, they do not have to abide by the rules of an organisation in handling family matters.

The negative association between work family conflict and employee wellbeing found in the current study is consistent with role theory (Kahn et al., 1964). Malaysian employees engage in different roles in the workplace as well as at home (e.g. husband, wife, parent, son and daughter), exhibiting their capabilities at performing another role, resulting in conflict, and therefore affecting their wellbeing. A constraint of time and energy due to performing dual roles has a detrimental effect on individuals’ wellbeing.

There is agreement on the adverse impact of WFC on employee wellbeing in both the current study and most of the studies in Eastern settings (e.g. Aryee, 1992; Aryee et al., 1999) with the sole exception of life satisfaction. The fact that neither WFC nor FWC correlated significantly with life satisfaction in the current study was unexpected but is consistent with a study by Aryee et al. (1999) involving Hong Kong employees which revealed a non-significant association between WFC and measures of wellbeing including job, family and life satisfaction. Thus, the insignificant findings might be attributed to Malaysian employees’ willingness to use their time and energy to do their jobs even during time they should spend with their families. For them, work interfering with family did not affect life satisfaction as long work hours were regarded as a sacrifice for the welfare of their families (Galavon et al., 2010; Spector et al., 2004). Abdullah (1995) described Malays as having concern for family obligation rather than self achievement. For example, in a qualitative study by Chew-Gan, Samartunge and

Smith (2001), a Malaysian employee reported that “I know what my priority is and I am willing to forego my career in order to take care of the family. I never see it as a sacrifice or a problem because my family is my joy” (p. 11). In other words, the inconsistencies in the findings might be due to cultural differences which affect the perceptions of individuals regarding the meaning of work and family matters (Aryee et al., 1999; Galavon et al., 2010).

6.2.5 Moderating effects of job control (Research Question 5)

In understanding the contribution of job control as a moderator, the current study focussed on the extent to which job control in the workplace can mitigate the effects of work stressors. Thus, the following section discusses the findings in relation to the interactive effects of: job control and job demands; job control and organisational justice (procedural, interactional and distributive justice); and job control and work family conflict (WFC and FWC) in predicting employee wellbeing.

6.2.5.1 Job control as a moderator variable in the relationship between job demands and wellbeing

The results of this study demonstrated that job control did not moderate the negative consequences of job demands on all employee wellbeing indicators, involving workers from a collectivist society in a heterogeneous environment. These findings are at variance with the prediction of the JDC model which postulates the interactive effect of job demands and job control in predicting employee wellbeing. Sheffield, Dobbie and Carroll (1994) claimed that using heterogeneous respondents may confound findings when tested using the JDC model. However, the present study agrees with the findings of other studies which adopted a homogenous sample using the JDC model (e.g. Pomaki & Anagnostopoulou, 2003; Rasku & Kinnunen, 2003; Verhoeven et al. 2003). In other words, the use of homogenous samples also revealed the insignificant moderating effect of job control in the relationship between job demands and employee wellness.

Failure to support the moderating role of job control in the current study conducted in the context of collectivist Malaysia cannot be attributed solely to the

heterogeneous nature of respondents, but to the possibility of cultural differences. For example, a recent study by Bhagat et al. (2010) found that job control moderates the stressors-strain relationship in countries with high scores of individualism (USA and New Zealand), but not in countries with low scores of individualism (Germany, South Africa, Spain and Japan). In other words, the insignificant role of job control in moderating the job demands and wellbeing relationship (as postulated by the JDC model developed by Karasek) could be explained by the different cultural perceptions of this job resource by Malaysian employees who have low scores of individualism.

Another possible reason for the insignificant moderating effect of job control in the current study is the employees' perceptions of job control. For example, in the context of Malaysia, Panatik (2010) found that a majority of respondents have similar perceptions of the importance of job control; that is, they prefer less control and assume that more control will result in more job demands. In addition, the perception of employees that "increased control increased responsibility and often increased workload" (Spector, 1986, p. 1,014) can hinder the significant moderating role of job control in predicting employee wellbeing, hence, explaining the results of the current study. Furthermore, employees in this study might perceive increased responsibility and personal job control as a burden, as the nature of respondents' work involves a sharing of responsibility and control (Griffin & Clarke, 2009). Griffin and Clarke (2009) stated that, for some individuals, having a strong control can exacerbate rather than mitigate stress in highly demanding jobs. This is in agreement with other studies that report job control as not being a significant job aspect required by all individuals. Some individuals prefer to follow others rather than be in charge, in order to have less stress and greater job satisfaction (e.g. de Rijk et al., 1998; Parkes, 1989, Smith, Wallston, Wallston, Forsberg & King, 1984).

The findings of the present study concur with another study involving an Eastern country by Spector et al. (2004), who discovered that, in China, workers emphasized their preference for social networks within work groups, as opposed to individualist cultures where workers prefer employment that focuses on personal control. The nature

of collectivist societies such as Malaysia is that individuals prefer collective rather than personal control, with higher power distances from their leaders (Hofstede, 1991). Asian workers, particularly Malaysians, are expected to comply with their superiors (Lu et al., 2003). As a result, Malaysian employees who are subject to a high power distance tend to be submissive and avoid disagreements with their supervisors. They obey orders without question or hesitation and follow the instructions of supervisors (Rahim, 2008).

6.2.5.2 Job control as a moderator variable in the relationship between organisational justice and wellbeing

The current findings partially confirm the two-way interaction effects of organisational justice and job control in predicting job satisfaction and positive affect, but this interactive effect was not significant in predicting other wellbeing indicators. The significant moderating effect of job control on job satisfaction might be related to the claim by Warr (1987), that specific job-related mental health factors (like job satisfaction) were likely to have a significantly greater impact compared to context-free mental life factors which deal with general wellbeing. In terms of positive affect, Langford (2010) reported that positive affectivity tended to capture the aspect of the employees' level of positivity towards their jobs and work tasks. Thus, these two-way moderating effects are significant, and these two criterion variables (job satisfaction and positive affect) have been perceived as the most dominant dimensions of wellbeing.

However, the two-way interaction between job control and interactional justice is contrary to the prediction of the JDC model. In this study, Malaysian employees who perceived interactional justice and high job control reported having lower job satisfaction. As discussed earlier, a possible reason for this contradiction with the Western designed JDC model is that the culture in which workers in this collectivistic society operates makes them uncomfortable with situations in which there is a low power distance. Assembly workers and supervisors in this study, who are working in groups, might have no experience in taking personal responsibility in group situations and prefer to be led by team leaders rather than take personal control over their work tasks.

Unlike the moderating effect of job control contributing to low job satisfaction, the interaction effect of distributive justice and high job control was found to significantly increase employees' reported experience of positive affect. This finding may be explained by the fact that employees in this study actually benefitted from their perceived high job control which resulted in increased positive affect in their non-job specific daily lives.

Since only a few studies have investigated this aspect, these findings regarding the role of job control in moderating the relationship between organisational justice and employee wellbeing in Malaysia, contribute to the cross-cultural literature. No study has been found that tested the moderating role of job control on the relationship between distributive justice and employee wellbeing in collective societies, particularly Malaysia. Furthermore, previous research findings into the moderating effect of job control on organisational justice (procedural justice) and its outcomes have been inconsistent and contradictory (Elovainio et al., 2001; Elovainio et al., 2005; Rousseau et al., 2009).

The insignificant moderating effect of job control on other wellbeing indicators, except job satisfaction and positive affect, can be explained by a few possible reasons. For example, the most likely justification for the contradiction in findings between the current study and the work of Elovainio et al. (2005) and Rousseau et al. (2009) is that the form of job control being investigated was different. In addition, Frese (1989) argued that different dimensions of control may have varying degrees of relevance to health across individuals and across times. For example, job control in the current study was adopted from Karasek (1985) and involved multiple dimensions of control including having an opportunity to develop skills and make decisions. On the contrary, control in Elovainio et al.'s (2005) study specifically focuses on the influence that employees have on their working time (e.g. "the starting and ending times of a workday", "the taking of breaks during the workday") (p. 2504). Similarly, Rousseau et al. measured control by using work autonomy items (Breugh, 1998; Halkman & Oldman, 1975). Moreover, they pointed out that this subscale is quite specific and represented a more focused concept measuring job control, compared to the original concept developed by Karasek

(1979). Therefore, the non-significant moderating effect of job control on the relationship between organisational justice and most of the employee wellbeing indicators in the Malaysia context can be attributed to the unspecified dimension of job control used in this study.

In addition to a methodological limitation that contributed to inconsistencies in the findings related to the moderating effect of job control, another possible reason for the insignificant moderating effect of job control could be the different perceptions of respondents regarding the importance of control and justice. For example, Rousseau et al.'s (2009) study was conducted in a prison setting involving correctional officers for whom the effect of perceived justice on work outcomes was more salient than for the current study participants (from a manufacturing setting). For the respondents in Rousseau et al.'s sample, having control on the job was synonymous with the nature of their work, which involves applying sanctions on prisoners.

6.2.5.3 Job control as a moderator variable in the relationship between work family conflict and wellbeing

Job control is the commonly investigated job resource in occupational stress studies and has been found to be limited not only in organisational justice research but also in work family conflict research. Moreover, the current findings have been unable to demonstrate a significant moderating effect of job control in the relationship between work family conflict and wellbeing outcomes. This is consistent with Barich (1994) who investigated the moderating role of control on the experience of work family conflict. However, the current findings did not offer further support for the findings by Mauno et al. (2006) who found that job control moderates the adverse impact of work family conflict on wellbeing outcomes.

The inconsistency of the findings again might have been due to the way job control was measured. For example, as discussed earlier, the current study measured job control by using nine items of Karasek's (1985) instrument which focus on the authority to make decisions and the extent to which employees can use their skills in performing

their jobs. On the other hand, Mauno et al.'s (2006) study measured a specific form of job control consisting of timing and method control items. Furthermore, Sargent and Terry (1998) stated that the use of composite measures of job control (as in the current study) might contribute to the insignificant effect of job control analysis since different types of job control have been found to be associated with different types of employee strain outcomes (Carayon & Zijlstra, 1999).

Another possible explanation for this is the strict nature of Malaysian organisations' practices regarding working hours, particularly in the study organisations investigated in this study. These practices hindered the possibility of testing a more specific form of job control. A recent study by the American Sociological Association (2011) found that a specific control (schedule control – control over when and where to work) is a significant form of control that benefits employees and their families. However, this is not applicable in the context of the current study in which schedule control is almost impossible, and employees must abide by the working hours imposed by the employer. This is further supported by Hassan and Dollard (2007) who point out that flexible work options are not commonly offered by Malaysian organisations.

In conclusion, the findings of the current study have revealed that the interactive effect of job control and predictor variables received little support. Only two out of 42 two-way interactions involving job control as a moderator were significant (between interactional justice and job control in predicting job satisfaction and between distributive justice and job control in predicting positive affect).

6.2.6 Moderating effect of social support (Research Question 6)

Following the discussion of the moderating effect of job control, social support is another job resource that has been widely discussed in the literature as benefitting employee wellbeing. The current study focuses on the extent to which social support improves Malaysian workers' wellbeing when dealing with job demands, organisational justice and work family conflict. Specifically, the section discusses the findings related to the contribution of interactive effects between: social support and job demands; social

support and organisational justice (procedural, interactional and distributive justice); and social support and work family conflict (WFC and FWC) in predicting employee wellbeing.

6.2.6.1 Social support as a moderator variable in the relationship between job demands and wellbeing

In addition to the moderating effect of job control, the current study also tested the role of social support as a moderator. This study partially confirmed the effect of social support in moderating the negative consequences of job demands on wellbeing. This was particularly significant in predicting job satisfaction which corroborates earlier findings (Beehr et al., 1990; Chay, 1993) but is not significant in predicting the other wellbeing indicators. Here the finding showed a lack of evidence for the moderating effect of social support in the current study which was consistent with the review by van der Doef and Maes (1999) of the job demand-control and job demand-control-support models which found that job satisfaction was the main measure of job-related wellbeing outcomes.

When working in a workplace where employees experience high levels of work demands, but with highly supportive supervisors and co-workers, employees were found to be less likely to report low job satisfaction. The most likely explanation of the significant moderating effect of social support on job satisfaction is that there is a match between stressors and the support that employees receive (Terry, Nielsen & Perchard, 1993; Pelfrene et al., 2001). In other words, in the current study, social support received from the workplace (supervisor and co-worker support) matched the stressor derived from the workplace (job demands), resulting in the significant moderating effects.

Findings of the insignificant moderating effect of social support on the relationship between job demands and wellness in this study were consistent with previous studies (Fujishiro, 2005; Pomaki & Anagnostopoulou, 2003). In addition, these findings were comprehensively supported by van der Doef and Maes's study

(1999), which reported inconsistencies in the results regarding the role of social support in supporting buffering hypotheses.

A possible explanation for the contradictory findings is the different foci on social support measurement. For example, the current study measured social support focusing on the composite of both supervisor and co-worker supports, namely, the work-related context, without going further into assessing non-related work social support. In contrast, Beehr et al. (1990) reported a significant moderating effect of social support focused on non-job communication between supervisor and subordinates as a form of social support. Items such as “we discuss things that are happening in our personal lives” and “we share personal information about our backgrounds and families” were used to measure social support in their study. This therefore might contribute to the salient effects of social support as the moderator.

Another likely explanation for this is that the current study focused on the providers of social support (supervisors and co-worker supports) and not on the function of social support (e.g. listening, technical support and emotional support) as suggested by Pines, Ben-Ari, Utasi and Larson (2002). Focusing on the providers of social support (supervisor, co-workers and organisational support) as the moderator also received some support in another similar study involving Malaysian employees (Panatik, 2010). Therefore, Malaysian employees might perceive a need for a more significant social support function, that is, emotional support (“someone who is there for you no matter what” (Pines et al., 2002, p.257) that will mitigate the stressors that they experience at the workplace, similar to what was highlighted in the Arab-Israeli collectivism in Pines et al.’s study.

6.2.6.2 Social support as a moderator variable in the relationship between organisational justice and wellbeing

The current study also tested the moderating effect of social support in the relationship between organisational justice (procedural, interactional and distributive justice) and employee wellbeing. In contrast to earlier findings (Rousseau et al., 2009),

however, no evidence of the moderating effect of social support on each of the wellbeing indicators could be demonstrated in the current findings.

A possible explanation for the non-significant moderating effect of social support is that, although the validity and reliability of both social support and interactional justice were proved, according to Fujishiro and Heaney (2007), an overlap in the conceptualisation and operationalisation of social support and interactional justice, as perceived by the respondents might occur. The possibility of construct overlapping was argued by Kivimaki et al. (2004) when they used social support measures to assess interactional justice. In addition, Elovainio et al. (2001) stated that “high interactional justice represents an element in employee’s experience of the availability of social support from the organisation, the most powerful segment from the organisation” (p. 422).

Another possible reason for the non-significant effect of social support on the organisational justice relationship (not investigated in the current study) is that other factors may indirectly moderate employees’ perception of justice. For example, Lam et al. (2002) pointed out that in Hofstede’s (1991) study, dimensions of culture and power distance moderated the relationship between perceived justice and employee work wellbeing outcomes, including satisfaction, performance and absenteeism. However, the effect of perceived justice on these outcomes in Lam et al.’s study was stronger among workers scoring lower power distance (United States) than higher power distance (Hong Kong). This, as also evidenced in the contrast between the high power distance culture of Malaysia and the low power distance of Canada revealed by Rousseau et al. (2009) explains the contradictory findings.

6.2.6.3 Social support as a moderator variable in the relationship between work family conflict and wellbeing

In investigating the moderating effect of social support on the work family conflict relationship, the results of two-way interaction only revealed a significant effect in predicting positive affect (not other wellbeing indicators), which partially confirmed

the hypothesis. However, this interaction differs from predictions in the JDCS model. In the current study, among high WFC employees, the availability of high social support decreases the levels of workers' positive affect, whereas, low social support increases their positive affect. This reverse buffering effect of social support may explain the occurrence of interactions which are not in accord with the expected prediction (e.g. Beehr & Glazer, 2001; Redman & Snape, 2006). A similar phenomenon in another Eastern cultural setting (China) was explained in research by Liang and Bogat (1994) in which participants who perceived higher social support during stressful periods reported more illness than those who perceived lower social support. A possible explanation for the presence of this reverse buffering effect is the content of the support (Sullivan & Bhagat, 1992). It seems possible that Malaysian employees in the present study need support beyond that provided by work specific communication (Beehr et al., 1990). It may be that non-work-related communication practices mitigate the negative consequences of high work family conflict experienced by many employees. In addition, consistent with Kaufman and Beehr (1986), occurrence of the reverse buffering effect of social support might be attributed to the possibility that employees who received high support in the current study were not encouraged by their co-workers and supervisors in the right ways to face the challenges of work family conflict. On the other hand, these employees may have received continuous negative reassurance regarding work family conflict from support providers, resulting in the reporting of decreased positive affects.

Social support was not found to substantially moderate the relationship between WFC and FWC and wellbeing in the current study. Although this differs from the findings of some published studies (Lingard & Francis, 2006; Salami, 2007), it is consistent with the findings of Frone et al. (1991), Parasuraman et al. (1992) and Phelan et al. (1991). These results offer inconsistent findings to demonstrate the effects of cultural differences on the importance and availability of social support (Pines et al., 2002). It seems possible that these contradictory findings related to the moderating role of social support might be attributed to cultural differences. Barak et al. (2003) stated that the structure of the social support network may vary from one culture to another, and found that the social support network was highly interconnected in collectivist

societies. In the current study, the focus of social support was on the workplace (supervisor and co-workers) and not expanded outside the workplace (e.g. to include family, friends and neighbours) which is another important social network in the collectivist culture of Malaysia, thereby creating a significant main impact on work related wellbeing rather than a moderating effect. In other words, the failure of social support to function as a moderator in the current study might be attributed to cultural factors.

In a collectivist society, social support extends to supports outside the workplace including spouse, siblings and family rather than being restricted to support offered in the workplace. According to Terry et al. (1993) and Pelfrene et al. (2001), social support has the potential to buffer the negative consequences of the outcomes whenever it matches the stressors that are experienced by individuals. Employees in this study might benefit from social support from family members and friends in dealing with conflicts that arise from family matters, rather than social support from their workplace. In other words, non-work domain stressors most likely need support from outside the workplace. However, in the current study, family issues, particularly FWC, might be perceived as personal matters and the employees may feel more comfortable and confident to receive support from family members or friends (Salami, 1998). Since the present study involved a majority of Malay respondents, they were most probably reluctant to receive support from outsiders (Abdullah, 1995). Exclusion of these support providers as moderator variables may have contributed to the lack of significant findings in the current study.

Besides not having addressed family members and friends as social support providers, another possible explanation for the insignificant contribution of social support as a moderator variable is the fact that Malaysians are highly religious. According to Department of Statistics Malaysia (2011), the overwhelming majority of Malaysians (99.3 percent) consider themselves to be religious. Since the majority of respondents in the current study are Muslims, they may be more likely to engage in religious activities that positively impact on their wellbeing whenever dealing with

conflict at work or home. Attachment to God provides a reliable source of support in general (Bostik & Everall, 2007; Rowatt & Kirkpatrick, 2002). Thus, it is plausible that workplace supports were not a significant source of mitigation the relationship between work family conflict and wellbeing. According to Idris et al. (2010), Malaysian workers perceive the stressors that they faced at the workplace as the work of God. One of the respondents in their study revealed in an interview that one of the practical solutions when faced with a stressor at the workplace is to perform religious deeds, donations and *redha* and *tawakal* (being fully accepting of a situation even if it is difficult, (p. 145). As Loewenthal, Cinnirella, Evdoka and Murphy (2001) reported, when dealing with depression, Muslims prefer to engage in religious activities.

Findings on the main effect of work family conflict on employee wellbeing are consistent with the principles of role theory (Kahn et al., 1964). However, the findings did not support the conservation of resources (COR) theory (Hobfoll, 1989) which attempts to expand the direct relationships in role theory by incorporating job control and social support as job resources. In the context of this study, the argument of COR is used where individuals are able to benefit from job resources to successfully perform another role. However, the findings show that job resources did not moderate the negative consequences of work family conflict on employee wellbeing.

The current study suggests that social support is the most significant psychosocial work environment factor that has a main effect on work related wellbeing. With regard to two-way interactions, the findings showed that only two out of a total 42 interactions received support. The current findings partially confirmed the interactive effect of social support with the predictor variables (between job demands and social support in predicting job satisfaction and between WFC and social support in predicting positive affect). The two-way interaction effect of WFC and social support did not agree with the direction as hypothesised by the JDC and JDCS models as argued by de Jonge and Kompier (1997).

In conclusion, the overall findings regarding moderating effects can be explained by the non-availability of a degree of match between stressors, resources and outcomes, as argued by Frese (1999) and de Jonge and Dormann (2006). Even though the buffering effect hypotheses of JDC and JDCS models received modest support in previous Western studies (van der Doef & Maes, 1999), in the current study the mismatch between stressors, resources and outcomes was found to be an additional contribution to most of the non-significant moderating effects. For example, the current study, focusing mainly on job-related resources (job control and social support) has produced a significant two-way interaction effect of job demands and social support and a two-way interaction effect of interactional justice and job control in predicting job satisfaction. Incorporating work family conflict without including non-work social support (spouse, family etc) creates a mismatch between this stressor and resource.

6.2.7 Moderating effect of high social support on the relationship between stressors (high job demands, low organisational justice, high work family conflict) and low job control, and employee wellbeing (Research Question 7)

The proposition of the JDCS model also tests three-way interaction in predicting employee strain and wellbeing. However, the findings in this study do not support the JDCS model in testing a three way interaction of predictor variables (job demands, organisational justice and work family conflict), job control and social support in predicting each wellbeing indicator. There is no evidence for the prediction that employees with high job demands/perceived low justice/high work family conflict, low job control and low social support are those with the lowest levels of wellbeing compared to employees with high job demands/perceived low justice/high work family conflict, high job control and high social support. Thus, extension of the use of JDC and JDCS models to understand Malaysian workers, particularly when the testing involved three-way interactions, was not supported, similar to Western studies by Pomaki and Anagnostopoulou (2003) and Rasku and Kinnunen (2003).

The non-significant interaction effects in the current study are explained by the multi-variables entered into the regression model (Mauno et al., 2006). However, it is

difficult to establish an explanation of these results, since investigating the three-way joint interactive effect of organisational justice (procedural, interactional and distributive) and job control and social support, and the three-way joint interactive effect of work family conflict and job control and social support, has no equivalent to compare with in published studies. The current findings reveal that using the JDC and JDCS models that are widely applied in relation to occupational stress does not appear to be substantially useful in the support of organisational justice or work family research in the Malaysian cultural context. It appears that, to date, this study is a pioneer in testing the eight predictor variables using the complex model of employee wellbeing in both work related and non-work related contexts. No study has simultaneously explored the interactions between these multiple variables.

As no significant three-way interaction effects could be demonstrated in the present study, the joint interaction between the eight predictor variables, job control and social support need further investigation. The current findings suggest no significant three-way interaction effects could be explained by the fact that higher order interaction effects are statistically hard to find (Frazier, Tix & Barron, 2004; Mauno et al., 2006). In sum, the current study conducted in a collectivist culture setting provides a little evidence for the buffering effects hypotheses (two-way interaction).

6.3 Additional contribution to the corpus of literature

This section discusses results that provide additional information relating to prominent issues in the literature related to employee wellbeing in terms of gender, age, ethnicity groups and marital status.

In terms of gender, the current findings found no significant difference in most wellbeing indicators, except in regards to employees' life satisfaction and positive affect. Most of the studies in Malaysia focus on women's wellbeing (e.g. Gan et al., 2001; Noor, 1996), so the current study was not able to make a detailed comparison of wellbeing with men's wellbeing. A study of both genders by Ng, Loy, Gudmunson and

Cheong (2009) found no gender differences in life satisfaction; however, their respondents involved only Chinese-Malaysians.

In terms of age, the most obvious differences were found in life satisfaction. The current findings indicate that employees aged 18 to 29 years still struggle in their adjustment to being involved in a new career, resulting in this group of workers being least satisfied with their lives. The pattern of life satisfaction reported in this study was consistent with another study conducted in Malaysia by Jusoff, Hussein, Ju and Din (2009), where older employees with more life experience were increasingly satisfied.

The current findings revealed a statistically significant difference between respondents' marital status regarding life satisfaction. Consistent with Stack and Eshleman (1998), the current study found that married men and women were happier and more satisfied with their lives than non-married individuals. Although there was no significant difference among the life satisfaction of married, divorced and widowed employees, widowed employees reported the highest life satisfaction, consistent with the study by Ball and Robbins (1986). The most probable explanation is that the widows were fulfilled in their lives and held few regrets.

An unexpected finding worth highlighting here is that the current study shows that the minority Indian-Malaysians were more satisfied than Malays in terms of work related wellbeing. Malaysia is a multi-ethnic country that receives world recognition for ethnic integration ("Pengukuhan perpaduan negara," 2010). Being attached to the majority group might cultivate a sense of belonging and satisfaction (Mendoza-Denton & Page-Gould, 2008). However, Ng, Lim, Jin and Shinfuku (2005) also reported that the highest total quality of life scores were among Indians compared to Chinese and Malays in Singapore. Another study in Indonesia by Lokman and Ianita (2007) found that a minority group (the Chinese) reported more satisfaction with their jobs compared to the majority group (the Javanese). Another most likely explanation for this is that being members of a minority group challenges the employees to strive for their lives resulting in better wellbeing. However, given the small number of Indian-Malaysians and

Chinese-Malaysians within the sample in the current study, any interpretation of this cultural difference requires caution.

6.4 Alternative moderators

In the present study, the JDC and extended JDCS models used to test two-way interactions (predictor variables and job control/social support) received a little support with no evidence of three-way interactions (predictor variables, job control and social support). However, possible variables that could act as alternative moderators to job control and social support have not been addressed in the current study. These include religion and personal resources, namely locus of control and self efficacy.

As the overwhelming majority of Malaysians are religious (99.3 percent) according to the Department of Statistics Malaysia (2011), the most significant factor that might have an impact on wellbeing, either directly or indirectly, is religion. This postulation has been supported in an article relating to a Malaysian case study in which one respondent reported that, even though she was not happy with her job, her life satisfaction was related to God. This is supported by previous studies in Western countries which found that religion is a significant coping strategy for dealing with difficult situations such as psychological distress and depression (e.g. Siegel & Kuykendall, 1990; Williams, Larson, Buckler, Heckmann & Pyle, 1991). For example, Noor (1999 p. 140) suggested that religion offers the hope, solace and power that individuals obtain which otherwise are beyond available resources. In addition, Lazarus (1966) believed that faith in higher power plays a significant role in influencing employees' life appraisals. In this context, the religious beliefs of Malaysian employees might buffer the stressors they face either in the workplace or family.

Another factor, personal resources such as locus of control (Noor, 2002) and self efficacy (Siu et al., 2007; Siu et al., 2005), are potential moderators, in addition to job control and social support. These moderator variables derived from personal resources have been found to have a significant main and moderating effect on employee wellbeing outcomes involving collectivistic societies. In other words, personal resources

need to be taken into consideration as a potential moderator in predicting wellbeing in the context of Malaysian employees, particularly as this study incorporates non-work related wellbeing indicators. These suggested moderators were consistent with de Jonge and Dormann (2006) who emphasized the need to match between stressors (predictor variables), resources (moderator variables) and outcomes (criterion variables).

In sum, the insignificance of the moderator variables, namely job control and social support, in moderating the relationship between stressors (high job demands, low organisational justice and high work family conflict) and wellbeing might be attributed to other possible moderator variables which are not addressed in the current study. These possible moderators are highlighted as relevant to the context of the collectivist culture of Malaysian society.

6.5 Implications

From the discussion of the above findings, several implications can be derived from both a theoretical and a practical perspective. This discussion begins with an overview of the theoretical implications, followed by the practical and managerial implications.

6.5.1 Theoretical implications

Research on employee wellbeing in Malaysia, or even in South East Asia, is still scarce. Most studies have been conducted in Western countries such as Australia, the US, UK and other European countries, and research into worker wellbeing in Eastern cultures is under-represented (Suhail & Chaudhry, 2004). The present findings contribute to the corpus of literature on the reliable predictor variables of employee wellbeing, particularly in Malaysia. Therefore, it contributes to the corpus of literature on prediction of wellbeing conducted in Eastern settings.

The present study explored manufacturing workers from different positions including assembly workers, supervisors and managers – an under-represented group in previous studies in Malaysia (Noor, 1999, 2002, 2006). In other words, the strength of

this study is that as it has used a non-Western site in the manufacturing sector of Malaysian organisations, and, as a result, the overall findings should contribute to further understanding of the cross-cultural aspects of reliable predictors of employee wellbeing in collectivist societies.

Besides employing data from the manufacturing sector, the current research also employed Karasek's (1979) JDC and Johnson and Hall's (1988) JDCS model simultaneously as the theoretical background of the study. As Loretto et al. (2005) and Spark and Cooper (1999) warn, these two models tend to focus too much on the work environment (job demands, job control and social support), neglecting individual aspects and other job variables. In addition, Pisanti et al. (2011) establish that the JDCS variables explain an important contribution but are still limited in explaining the variance in the outcome measures. This study, therefore, incorporates other job variables including organisational justice, and the non-work domain including both work and non-work (work to family and family to work conflict) aspects, as predictors. By doing so, it contributes to the theory of worker wellbeing investigating both factors (Loretto et al., 2005). The current study is among the first conducted in Malaysia, and one of the few to be conducted in an Eastern country incorporating the JDC and JDCS models to study a workforce operating in the cultural context of a collectivist, high power distance society (Pاناتیک, 2010).

The current research provides partial support for the use of psychosocial work environment (job demands, job control and social support), organisational justice (procedural, interactional and distributive) and work family conflict (WFC and FWC) as reliable predictors of wellbeing in the context of Malaysian employees. In addition, this study provides a small amount of support for the moderating effect of job control and social support on employee wellbeing. Even though only a small percentage of additional variance was found in the interactive models, an interaction effect was considered to contribute significantly to explaining the model (Meier et al., 2008). Furthermore, Evans (1985) stated that even an additional one percent above the main

effect can be considered as an important contribution, since the moderation effect is difficult to achieve.

Most importantly, the current findings provide strong empirical support, consistent with the basis of the principles of double-match (Frese, 1999) and triple-match (de Jonge & Dormann, 2006). Furthermore, even though the two-way moderating effects received only a little support, they are consistent with the approaches of Frese (1999) and de Jonge and Dormann (2006) which emphasised the match between the stressors, resources and outcomes. For example, in this study, high social support was found to prevent the negative consequences of job demands on employee job satisfaction. A significant moderating effect occurred as there was a perfect match between the stressor, resource and outcome (in the work context).

6.5.2 Practical and managerial implications

From practical and managerial perspectives, the current study highlights several important implications for how organisations can enhance both their workers' wellbeing and their organisations. Although the current findings did not fully demonstrate that the JDCS model could be applied in a Malaysian context, the significant implication of this study is the knowledge it provides organisations concerning reliable predictors of how the psychosocial work environment, organisational justice and work family conflict impact on employees' wellbeing, particularly job satisfaction.

Firstly, the results of the current study reveal that job demands significantly relate to work related wellbeing. This aspect of the psychosocial work environment was found to be consistent with negative impacts of wellbeing in both Eastern and Western findings in the field (e.g. Edimansyah et al., 2008; Macklin et al., 2006; Mausner-Dorsch & Eaton, 2000). Therefore, employers should be aware of the need for appropriate allocations of workload to employees to avoid the occurrence of psychological stressors. Human resource departments could recruit counsellors or psychologists to organise training or workshops for employees, particularly team leaders and supervisors, to equip them through the provision of personal strategies to deal with problems arising from

overwhelming job demands. For example, training in time management and work prioritisation are important factors that might lessen workers' perceptions of high job demands. However, Panatik (2010) found that employers might face difficulty in reducing job demands, as these constitute the core task of employees. Organisations could therefore promote stress management programs (e.g. religious activities, relaxation and meditation) to help employees cope with such stressors (Lonne, 2003). Employers also could help in managing a realistic and appropriate workload among the employees.

Secondly, with respect to job resources, the findings have implications for human resource management practices. This is especially so as social support was found to be the dominant predictor of job satisfaction compared to other aspects of the work psychosocial work environment. In Malaysia, a relationship-oriented society, loyalty, trust and a sense of belonging are highly valued (Abdullah, 1995). Thus, managers must cultivate personalised relationships with their subordinates, especially in work related factors. House (1981) suggested that employers should organise regular work unit meetings to enable the delivery of constructive feedback. For example, team leaders or supervisors can regularly give information related to the job and discuss realistic workloads to reduce job stressors, particularly job demands. Implicated organisations could consider providing training for team leaders or supervisors to equip them with the capability to provide feedback, support and coaching (Pisanti et al., 2011). Furthermore, managers could expand social support so that it is not only confined to job-related issues, but to non-job matters. Issues such as work family conflict experienced by employees must be seriously dealt with as they affect the wellbeing of workers. For example, Beehr et al. (1990) found that non-job-related communication between supervisors and subordinates was significant in dealing with stress, which indicated that the different levels of staff know and are concerned about each other. As Love, Galinsky and Hughes (1987) reported, support at work, particularly supervisor concern about work and family issues, was a crucial need among blue collar workers.

Thirdly, the current findings indicate that job control is not as important as revealed in most Western findings (Gilbreath & Benson, 2004; van der Doef & Maes, 1999). Griffin and Clarke (2009) stated that for some individuals having high control can exacerbate rather than mitigate stress in high demand jobs. Similarly, Warr (1987) describes job control as vitamins, with the analogy that overdoses can have a negative rather than positive effect on an individual. Even though the findings did not show that job control was significantly related to work related wellbeing, human resource practice should not totally ignore the importance of job control for the successful operation of the organisation, especially at managerial levels. In the early stage, allocation of minimum control to each employee or group of employees, (particularly assembly workers and supervisors), can be suggested. This will develop a sense of confidence in fulfilling responsibilities and make workers aware that having control in performing tasks does not mean burdening themselves with an increased workload. It is also suggested that organisations provide training programs related to enhancing workers' control beliefs which may help to protect health and wellbeing (Meier et al., 2008). In addition, Meier et al. (2008) argued that increasing both job control and the control beliefs of workers can create a fit between individuals and their work environment, in agreement with the Person-Environment Fit theory (Edwards, Caplan & van Harrison, 1998). According to Mauno et al. (2006), each individual should have an optimal level of job control which is taken into consideration early in the job design process.

Fourthly, the finding of this study indicates the importance of organisational justice as a predictor of work related wellbeing. The literature clearly highlights the guidelines for human resource managers of organisational procedural justice including consistency, suppression of bias, accuracy, correctability, representation and ethicality (Leventhal, 1980). This indicates that the implementation of these interventions aimed at improving organisational justice should have a positive impact on employees as well as organisations. However, although it is impossible to take into account the interests and preferences of all employees in the organisation (Greenberg, 2004), it is beneficial to organise training programs that enhance managers' awareness about the importance of justice in the workplace (Rousseau et al., 2009). Greenberg also found that training

programs can raise the consciousness of managers to understand the impact of every decision and procedure made on the employees. Malaysia has a multi-ethnic workforce, therefore, it is important to promote a just and inclusive organisational working culture which can create a sense of belonging, satisfaction and commitment among employees.

Finally, the findings of this study suggest the differential effects of work family conflict. WFC was a dominant predictor in relation to wellbeing related to work, whereas FWC was a dominant predictor in relation to wellbeing outside the work context. Therefore, the findings provide two different perspectives that need to be considered by organisations. With regard to WFC, management should be aware that work-related matters which are dealt with beyond working hours may affect employee work related wellbeing. Employees might feel that they have to complete the required task only for the purpose of managerial satisfaction but not for their own satisfaction. High job demands, high workloads and role overloads are examples of work matters that can create WFC, and therefore diminish workers' wellbeing.

The implementation of family friendly policies is one of the approaches which can reduce workers' experience of FWC. As the predominant employers in Malaysia, private sector organisations are encouraged to create a working environment that considers the multiple roles and responsibilities of workers, particularly women. Among the recommended practices are flexible working arrangements including part-time work, job sharing and teleworking. However, Hassan and Dollard (2007) found that these flexible practices are not a typical kind of Malaysian organisational initiative, unlike Western countries, particularly in the UK where parents of young children have the right to request more flexible working hours (Loretto et al., 2005). The Malaysian Government has offered tax deductions for employers who provide facilities such as child care centres, near or at the workplace, for their employees (Malaysia, 2001). Noor (1999), in her qualitative study, reported that married respondents revealed their feelings of guilt due to not spending enough time with their children. In addition, they suggested that employers should provide a child care service at the workplace to allow employees to concentrate on their jobs without worrying too much about their children.

Surprisingly, Ahmad, Mohd Yadzid and Lim (2006) in their study involving 74 factories in Malaysia, found that only one factory provided child care for employees. Even though the implementation of the suggested policy and facilities might generate extra cost for the organisation, the long-term benefit is worthy of attention.

Again, the roles of knowledgeable counsellors, psychologists and human resource managers are important in assisting employees to achieve a work life balance. As the seventh challenge of Vision 2020 stated, to be a developed country, Malaysians need “to establish a fully caring society and a caring culture, a social system in which society will come before self, in which the welfare of the people will revolve not around the state or the individual but around a strong and resilient family system” (Mohamad, 1993).

6.6 Limitations of the present research and future research directions

There are a few limitations and suggested future directions to this study. First, although the current study involved a substantial number of respondents, the sample over-represented Malay workers compared to the other main ethnic groups including Chinese and Indians due to the fact that the workforces in the manufacturing companies surveyed in this study were dominated by Malays. Therefore, the generalisability of findings might be restricted by the ethnic characteristics of the respondents. Future predictions of workers’ wellbeing should, if possible, accommodate the need for balancing the respondents to include all major ethnic groups in Malaysia: Malays, Chinese and Indians. Balanced respondent distribution might contribute different findings, particularly in the predictors of wellbeing and the different levels of employee wellbeing. As Hofstede’s cultural dimension explains, they belong to different ethnic and culture groups which influence their values in the workplace (Dwyer, 2006). Besides this inequality in the representation of ethnic groups, this study also focused solely on the manufacturing sector which may also limit the generalisability of its findings to employees in all sectors. Therefore, further research on Malaysian workers’ wellbeing should expand beyond the manufacturing sector, as findings consisting of a

representative sample would further validate the prediction model investigated in the current study.

Second, as this study employed a cross-sectional design, all the data were gathered within the limited period in which the surveys were conducted. For this reason, the ability to draw firm findings and conclusions pertaining to the predictor variables on employee wellbeing would be further strengthened by a longitudinal study. This is in accordance with Sekaran's (2003) longitudinal study involving two or more periods of data collection to investigate the behaviours and perceptions of employees over time. This approach could generate better understanding of the most reliable predictors of employee wellbeing in Malaysian organisations.

Third, this study uses a fully quantitative approach, where all the results and findings are discussed based on perceptions recorded in self-reported data. Harman's one factor test indicated that a common method bias is not a serious threat to the validity of data in the present study. However, it is recommended that future studies should incorporate a triangulation of data collection by including qualitative methods. Noblet (2003) stated that focus groups and in-depth one-to-one interviews provide better understanding of both individual and organisational factors that contribute to the investigated concerns. As suggested by Jex, Adams, Elacqua and Lux (1997), qualitative methods such as focus groups and one-to-one interviews can be an invaluable means for developing quantitative surveys that capture the unique needs and circumstances of staff (p. 358). Employing either a focus group or in-depth interview will also enable future researchers to report additional significant factors that might influence wellbeing from the respondents' own perspectives. Indeed, Pal and Saksvik (2006) suggested that adding qualitative data was an important step towards understanding aspects of human life such as work and family.

Fourth, it is recommended that further research employ a cross-cultural study that expands the strength of the current study including comparisons between Malaysian and Australian workers. Due to the lack of comparative studies involving developing

countries (Burke, 2010; Suhail & Chaudhry, 2004), future researchers could gain a better understanding of whether the studied predictor variables - JDC, organisational justice and work family conflict, significantly contribute to employee wellbeing in countries with different cultures.

Fifth, future research should also consider the potential moderators (religion and personal resources), beyond job resources, which are relevant to the collectivist culture of Malaysian society. Extending the source of social support (family members and friends) as a moderator in future studies also needs to be taken into consideration (Pomaki & Anagnostoupoulo, 2003).

Sixth, the current study focused only on external factors as predictor variables, without incorporating personality, which is a stable construct of individuals (Rahim, 2008). The remaining unexplained percentage in wellbeing might indeed be contributed to by the personality of employees (Noor, 1996) and this is not currently addressed. Thus, future research should incorporate both internal and external factors to produce better representation and more complex relationships in the prediction model of employee wellbeing.

Finally, after considering all these suggestions, future researchers need to develop a research framework that takes into the consideration the triple-match principle (de Jonge & Dormann, 2006). This is important as investigation of the match between the predictors-resources-outcomes will produce a more comprehensive and reliable model of employee wellbeing prediction, particularly in the context of Malaysia.

6.7 Conclusion

In summary, this study predicts employee wellbeing by looking at psychosocial work environments (job demands, job control, social support), organisational justice (procedural, interactional and distributive justice) and work family conflict (WFC and FWC). The study involved 1125 Malaysian employees in the manufacturing sector with all organisations being affiliated with the Federation of Malaysian Manufacturers 2008.

This study examined the prediction model of employee wellbeing indicators using a set of predictors including job demands, job control, social support, procedural, interactional and distributive justice, work to family, and family to work conflict. In addition, the independent effect of each predictor variable and moderating effect of job control and social support in predicting employee wellbeing were analysed.

Generally, findings reveal that the predictor variables related to work (e.g. job demands, organisational justice and social support) were effective as independent predictors of work related wellbeing, and predictors that are unrelated to work (FWC) are more dominant in predicting non-work related wellbeing. Regarding the moderating effect, the current findings demonstrate that job control acts as a moderator on distributive justice and job satisfaction as well as on interactional justice and positive affect relationships. In addition, social support mitigates the negative consequences of job demands on workers' job satisfaction. With regard to the moderating effect of social support on WFC and positive affect relationship, there appeared to be a *reverse buffering* effect, where employees experiencing WFC report higher levels of positive affect in the environment where social support is lacking. Further, the current findings provided no evidence in support for the three-way joint moderating effects of job control, social support and predictor variables.

This study replicates the JDC and JDCS models in the context of Malaysian employees, not only by adopting the key variables (job demands, job control and social support), but by incorporating both organisational justice and work family conflict. To date it does not appear that any research has considered incorporating these three variables in the exploration of simultaneous three-way joint interactions between organisational justice, job control and social support, and between WFC, job control and social support, in predicting employee wellbeing. However, the findings indicate that the JDC and JDCS models that are widely applied in occupational stress studies (particularly in Western countries), do not appear to be substantially supported in the current research.

Overall, even though this study does not strongly support the use of JDC and JDCS models, theories developed in Western countries to examine Western respondents can be modified for application in the Malaysian context, that is, in an Eastern setting. In addition to addressing this gap in knowledge, the current findings also yield insights that can enable practitioners to understand the practical implications that can be used to benefit their workers' wellbeing, as well as their organisation.

In regard to methodological limitations, this study employed a cross-sectional design with all the data gathered from surveys of respondents within a limited period of time. Therefore, the ability to draw a firm conclusion pertaining to relationships between the predictor variables and employee wellbeing in the current study would be further strengthened by a longitudinal study.

To conclude, the thesis findings highlight new directions for future research in the field. Methodological issues such as expanding the characteristics of respondents and the work sector, investigating employees' perceptions between time lags (longitudinal study), employing both quantitative and qualitative studies, and conducting comparison studies, are emphasised as worthwhile considerations for future research. The strength of this study is that it is among the first to employ JDC and JDCS models beyond their original variables, incorporating other work and non-work variables (organisational justice and work family conflict). Most importantly, it has used a non-Western site in the manufacturing sector (Malaysian organisations); thus, the overall findings should contribute to further understandings of the cross-cultural aspects in the prediction of employee wellbeing.

The study has revealed patterns that are similar to Western findings regarding the contribution of the main, additive and interactive predictors applied in the JDC and JDCS models. The JDCS variables, organisational justice and work to family conflict were consistently found to be significant predictors of work related wellbeing in this study. However, more research is needed to further validate the use of JDC and JDCS models in an Asian context, to further extend the applicability and generalisability of

these models beyond the West. The literature provides inconsistent support for the use of moderating predictor effects, so further investigation is necessary in collectivist settings to rule out the buffering effects hypothesis. Such cross-cultural research would help fill a gap in the literature and further validate the efficacy of JDC and JDCS models. These minor limitations notwithstanding, both the JDC and JDCS models remain the most widely tested in predicting employee strain and wellbeing.

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APPENDICES

Appendix A: Questionnaire (English Version)

You are invited to participate

You are invited to participate in a research project entitled **‘Psychosocial Work Environment, Organisational Justice and Work Family Conflict as Predictors of Employee Wellbeing’**.

Project explanation

The aim of proposed research is to investigate the predictors of employee wellbeing in the Malaysian context. Specifically, this study will investigate whether the psychosocial work environment, organisational justice and work family conflict can reliably predict levels of employee wellbeing. The study will contribute to the body of knowledge as previous studies were found lack a comprehensive model that is able to correlate and predict the employee wellbeing. The end results of this study will provide the employers, organisational psychologist and counsellor with input on the importance of employee wellbeing from employees’ perspective. Identification of reliable predictors of employee wellbeing gives a new view on the discussion of wellbeing which can affect the employees as well as the organisation. It is hope that the outcome of this research will assist the employee and employer on the importance of wellbeing, the value chain between employee and employer will be improved and greater performance will be achieved by both employee and organisation.

What will I be asked to do?

You are invited to participate in a survey which will take about one hour. The survey is to ask your perception on the factors such as the psychosocial work environment, organisational justice, work family conflict and how these factors have an impact on your wellbeing. You are not obliged to disclose anything which you think is confidential to your company.

What will I gain from participating?

Your participation will contribute to identifying the significant predictors of employees wellbeing. This study provides an important input for the organisation to understand more deeply employee behaviour specifically since this can affect the overall organisation. Furthermore, the study may contribute significant results regarding the severe consequences of unfavourable psychosocial work environments, lack of organisational justice and work family conflict to the employee and organisation. Identification of potential threats to the employee wellbeing will enable individual as well as organisations to adopt precautionary measures or resources to prevent negative outcomes.

How will the information I give be used?

Your information provided in the survey will be treated confidentially. You will remain anonymous. Data will be aggregated in such a way that you would not be identified.

What are the potential risks of participating in this project?

Minimum risks have been identified from participating in this project. Throughout the survey, if you feel uncomfortable or require some form of explanation; please feel free to raise the issue with the researcher. As indicated, you are free not to reveal any information that you think is too confidential to your company or to withdraw at anytime. However, you will not be identified as the source of author of any statement. Also, statements or comments will not be used in a way which will enable you to be identified.

How will this project be conducted?

This study is a quantitative research approach that involves the use of survey questionnaires in collecting the required data. According to Labour Force Survey, Department of Statistics Malaysia (2008), manufacturing industry workforce contributes eighteen (18) to twenty two (22) percent of total workforce between 2002 to 2007. Taking these considerations into account, the survey respondents in the present study will be selected from a chosen manufacturing companies using purposive sampling design (Neuman, 1997). The study will involve the survey with employees from manufacturing companies in Malaysia mostly registered with the Federation of Malaysian Manufacturers (FMM). So far four companies have been identified with the estimation of the total of 400 employees. They are assembly workers, supervisors and head of units/departments (administrative level)

Who is conducting the study?

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SECTION A: Respondents' demographic background. Place an [X] in the box that relevant to you.

1. Gender	Male	
	Female	

2. Age	18-29	
	30-39	
	40-49	
	50-59	
	60 ke atas	

3. Ethnic	Malay	
	Chinese	
	Indian	
	Others	

4. Status	Married	
	Single	
	Divorced	
	Widowed	

5. No of children	None	
	1 child	
	2 children	
	3 children	
	4 children	
	5 or more children	

6. Education level	Standard 6	
	Lower Certificate Education (LCE)	
	Malaysia Certificate Education (MCE)	
	Certificate	
	Diploma	
	1 st Degree and above	

7. Position _____

8. Employment status	Permanent	
	Temporary	
	Contract	

9. How long have you been employed in this organisation? Please state. _____

SECTION B: The following questions are about your perception towards the work environment and people you work with. Please circle the number that best describe your present agreement or disagreement with each statement.

	Strongly disagree	Disagree	Agree	Strongly agree
1. My job requires that I learn new things.	1	2	3	4
2. My job involves a lot of repetitive work.	1	2	3	4
3. My job requires me to be creative.	1	2	3	4
4. My job requires a high level of skill.	1	2	3	4
5. I get to do a variety of different things on my job.	1	2	3	4
6. I have an opportunity to develop my own special abilities.	1	2	3	4

	Strongly disagree	Disagree	Agree	Strongly agree
7. My job allows me to make a lot of decisions on my own.	1	2	3	4
8. On my job, I have very little freedom to decide how I do my work	1	2	3	4
9. I have a lot of say about what happens on my job.	1	2	3	4
10. My job requires working very fast.	1	2	3	4
11. My job requires working very hard.	1	2	3	4
12. I am not asked to do an excessive amount of work.	1	2	3	4
13. I have enough time to get the job done	1	2	3	4
14. I am free from conflicting demands that others make.	1	2	3	4
15. My supervisor is concerned about the welfare of those under him.	1	2	3	4
16. My supervisor pays attention to what I am saying.	1	2	3	4
17. My supervisor is helpful in getting the job done.	1	2	3	4
18. My supervisor is successful in getting people to work together.	1	2	3	4
19. People I work with are competent in doing their jobs.	1	2	3	4
20. People I work with take a personal interest in me.	1	2	3	4
21. People I work with are friendly.	1	2	3	4
22. People I work with are helpful in getting the job done.	1	2	3	4

SECTION C: The following questions are about your perception towards organisational justice. Please circle the number that best describe your present agreement or disagreement with each statement.

	Totally disagree	Disagree	Neutral	Agree	Totally agree
1. Procedures are designed to collect accurate information necessary for making decisions.	1	2	3	4	5
2. Procedures are designed to provide opportunity to appeal or challenge decision.	1	2	3	4	5
3. Procedures are designed to have all sides affected by the decision represented.	1	2	3	4	5
4. Procedures are designed to generate standards so that decisions could be made with consistency.	1	2	3	4	5
5. Procedures are designed to hear the concerns of all those affected by the decision.	1	2	3	4	5
6. Procedures provide useful feedback regarding the decision and its implementation.	1	2	3	4	5
7. Procedures are designed to allow for requests for clarification or additional information about the decision.	1	2	3	4	5
8. Your supervisor considered your view point.	1	2	3	4	5
9. Your supervisor was able to suppress personal biases.	1	2	3	4	5
10. Your supervisor provided you with timely feedback about the decision and its implications.	1	2	3	4	5
11. Your supervisor treated you with kindness and consideration.	1	2	3	4	5
12. Your supervisor showed concern for your rights as an employee.	1	2	3	4	5
13. Your supervisor took steps to deal with you in a truthful manner.	1	2	3	4	5

	Totally disagree	Disagree	Neutral	Agree	Totally agree
14. Fairly rewarded considering the responsibilities.	1	2	3	4	5
15. Fairly rewarded in view of the amount of experience you have.	1	2	3	4	5
16. Fairly rewarded for the amount of effort you put forth.	1	2	3	4	5
17. Fairly rewarded for the work you have done	1	2	3	4	5
18. Fairly rewarded for the stresses and strains of your job.	1	2	3	4	5

SECTION D: The following questions are about your work family conflict. Circle the number that reflects how much you agree or disagree with these statements.

1= Strongly disagree

4= Neutral

5= Agree slightly

2= Disagree

6= Agree

3= Disagree slightly

7= Strongly agree

1. The demands of my work interfere with my home and family life.	1	2	3	4	5	6	7
2. The amount of time my job takes up makes it difficult to fulfill my family responsibilities.	1	2	3	4	5	6	7
3. Things I want to do at home do not get done because of the demands my job puts on me.	1	2	3	4	5	6	7
4. My job produces strain that makes it difficult to fulfill family duties.	1	2	3	4	5	6	7
5. Due to work related-duties, I have to make changes to my plans for my family activities.	1	2	3	4	5	6	7
6. The demands of my family or spouse/partner interfere with work-related activities.	1	2	3	4	5	6	7
7. I have to put off doing things at work because of demands on my time at home.	1	2	3	4	5	6	7
8. Things I want to do at work don't get done because of the demands of my family or spouse/partner.	1	2	3	4	5	6	7

1= Strongly disagree
2= Disagree
3= Disagree slightly

4= Neutral

5= Agree slightly
6= Agree
7= Strongly agree

9. My home life interferes with my responsibilities at work such as getting to work on time, accomplishing daily tasks, and working overtime.	1	2	3	4	5	6	7
10. family-related strain interferes with my ability to perform job-related duties.	1	2	3	4	5	6	7

SECTION E: The following questions are about the job satisfaction. Please circle the one number for each question that comes closest to reflecting your opinion about it.

1= Disagree very much
2= Disagree moderately
3= Disagree slightly

4= Agree slightly
5= Agree moderately
6= Agree very much

1. I feel I am being paid a fair amount for the work I do.	1	2	3	4	5	6
2. There is really too little chance for promotion on my job.	1	2	3	4	5	6
3. My supervisor is quite competent in doing his/her job.	1	2	3	4	5	6
4. I am not satisfied with the benefits I receive.	1	2	3	4	5	6
5. When I do a good job, I receive the recognition for it that I should receive.	1	2	3	4	5	6
6. Many of our rules and procedures make doing a good job difficult.	1	2	3	4	5	6
7. I like the people I work with.	1	2	3	4	5	6
8. I sometimes feel my job is meaningless.	1	2	3	4	5	6
9. Communications seem good within this organisation.	1	2	3	4	5	6
10. Raises are few and far between.	1	2	3	4	5	6
11. Those who do well on the job stand a fair chance of being promoted.	1	2	3	4	5	6
12. My supervisor is unfair to me.	1	2	3	4	5	6
13. The benefits we receive are as good as most other organisations offer.	1	2	3	4	5	6

1= Disagree very much
2= Disagree moderately
3= Disagree slightly

4= Agree slightly
5= Agree moderately
6= Agree very much

14. I do not feel that the work I do is appreciated.	1	2	3	4	5	6
15. My efforts to do a good job are seldom blocked by red tape.	1	2	3	4	5	6
16. I find I have to work harder at my job because of the incompetence of people I work with.	1	2	3	4	5	6
17. I like doing the things I do at work.	1	2	3	4	5	6
18. The goals of this organisation are not clear to me.	1	2	3	4	5	6
19. I feel unaappreciated by the organisation when I think about what they pay me.	1	2	3	4	5	6
20. People get ahead as fast here as they do in other places.	1	2	3	4	5	6
21. My supervisor shows too little interest in the feelings of subordinates.	1	2	3	4	5	6
22. The benefit package we have is equitable.	1	2	3	4	5	6
23. There are few rewards for those who work here.	1	2	3	4	5	6
24. I have too much to do at work.	1	2	3	4	5	6
25. I enjoy my coworkers.	1	2	3	4	5	6
26. I often feel that I do not know what is going on with the organisation.	1	2	3	4	5	6
27. I feel a sense of pride in doing my job.	1	2	3	4	5	6
28. I feel satisfied with my chances for salary increment.	1	2	3	4	5	6
29. There are benefits we do not have which we should have.	1	2	3	4	5	6

1= Disagree very much
2= Disagree moderately
3= Disagree slightly

4= Agree slightly
5= Agree moderately
6= Agree very much

30. I like supervisor.	1	2	3	4	5	6
31. I have too much paperwork.	1	2	3	4	5	6
32. I don't feel my efforts are rewarded the way they should be.	1	2	3	4	5	6
33. I am satisfied with chances for promotion.	1	2	3	4	5	6
34. There is too much bickering and fighting at work.	1	2	3	4	5	6
35. My job is enjoyable.	1	2	3	4	5	6
36. Work assignments are not fully explained.	1	2	3	4	5	6

SECTION F: In this section we would like to ask you how things have been going at work in the past week. Please rate the items by circling the appropriate number on a scale of 1 to 6, where 1 means that you have never felt this way over the past week ranging through to 6, which indicates you have felt like this most of the time.

You have never felt this way over the past week	1	2	3	4	5	6	You have felt like this most of the time
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Thinking of the past week, how much of the time has your job made you feel each of the following?

1. Anxious	1	2	3	4	5	6
2. Worried	1	2	3	4	5	6
3. Tense	1	2	3	4	5	6
4. Relaxed	1	2	3	4	5	6
5. Comfortable	1	2	3	4	5	6
6. Calm	1	2	3	4	5	6
7. Depressed	1	2	3	4	5	6
8. Miserable	1	2	3	4	5	6
9. Gloomy	1	2	3	4	5	6
10. Happy	1	2	3	4	5	6
11. Pleased	1	2	3	4	5	6
12. Cheerful	1	2	3	4	5	6

You have never felt this way over the past week	1	2	3	4	5	6	You have felt like this most of the time
---	---	---	---	---	---	---	--

Thinking of the past week, how much of the time has your job made you feel each of the following?

13. Bored	1	2	3	4	5	6
14. Sluggish	1	2	3	4	5	6
15. Dull	1	2	3	4	5	6
16. Enthusiastic	1	2	3	4	5	6
17. Optimistic	1	2	3	4	5	6
18. Motivated	1	2	3	4	5	6
19. Tired	1	2	3	4	5	6
20. Fatigued	1	2	3	4	5	6
21. Sleepy	1	2	3	4	5	6
22. Active	1	2	3	4	5	6
23. Alert	1	2	3	4	5	6
24. Full of energy	1	2	3	4	5	6
25. Angry	1	2	3	4	5	6
26. Annoyed	1	2	3	4	5	6
27. Aggressive	1	2	3	4	5	6
28. Placid	1	2	3	4	5	6
29. Patient	1	2	3	4	5	6
30. At ease	1	2	3	4	5	6

SECTION G

The following questions are about your life satisfaction. Please circle the number that best describe your present agreement or disagreement with each statement.

1= Strongly disagree

4= Neutral

5= Slightly agree

2= Disagree

6= Agree

3= Slightly disagree

7= Agree strongly

1. In most ways my life is close to my ideal.	1	2	3	4	5	6	7
2. The conditions of my life are excellent.	1	2	3	4	5	6	7
3. I am satisfied with my life.	1	2	3	4	5	6	7

1= Strongly disagree
2= Disagree
3= Slightly disagree

4= Neutral

5= Slightly agree
6= Agree
7= Agree strongly

4. So far I have gotten the important things I want in life.	1	2	3	4	5	6	7
5. If I could live over my life I would change almost nothing.	1	2	3	4	5	6	7

SECTION H: The following words describe different feelings and emotions. Indicate to what extent you feel this way at the present moment by circling one number for each item.

	Not at all/very slightly	A little	Moderately	Quite a bit	Extremely
1. Interested	1	2	3	4	5
2. Distressed	1	2	3	4	5
3. Excited	1	2	3	4	5
4. Upset	1	2	3	4	5
5. Strong	1	2	3	4	5
6. Guilty	1	2	3	4	5
7. Scared	1	2	3	4	5
8. Hostile	1	2	3	4	5
9. Enthusiastic	1	2	3	4	5
10. Proud	1	2	3	4	5
11. Irritable	1	2	3	4	5
12. Alert	1	2	3	4	5
13. Ashamed	1	2	3	4	5
14. Inspired	1	2	3	4	5
15. Nervous	1	2	3	4	5
16. Determined	1	2	3	4	5
17. Attentive	1	2	3	4	5
18. Jittery	1	2	3	4	5
19. Active	1	2	3	4	5
20. Afraid	1	2	3	4	5

SECTION I: The following questions are about how you have been feeling and how you have been functioning during the past month. Please circle the number that best represents how often you have experienced or felt the following

0= Never

1= Once or twice

2= About once a week

4= About 2 or 3 times a week

5= Almost everyday

6= Everyday

1. happy	0	1	2	3	4	5
2. interested in life	0	1	2	3	4	5
3. satisfied	0	1	2	3	4	5
4. that you had something important to contribute to society	0	1	2	3	4	5
5. that you belonged to a community (like a social group, or your neighbourhood)	0	1	2	3	4	5
6. that our society is becoming a better place for people like you	0	1	2	3	4	5
7. that people are basically good	0	1	2	3	4	5
8. that the way our society works makes sense to you	0	1	2	3	4	5
9. that you liked most parts of your personality	0	1	2	3	4	5
10. good at managing the responsibilities of your daily life	0	1	2	3	4	5
11. that you had warm and trusting relationships with others	0	1	2	3	4	5
12. that you had experiences that challenged you to grow and become a better person	0	1	2	3	4	5
13. confident to think or express your own ideas and opinions	0	1	2	3	4	5
14. that your life has a sense of direction or meaning to it	0	1	2	3	4	5

Appendix B: Questionnaire (Malay Version)

Maklumat kepada peserta:

Kami ingin menjemput anda untuk turut serta dalam satu projek penyelidikan bertajuk **‘Persekitaran Psikososial Kerja, Persepsi Terhadap Organisasi dan Konflik Kerja/Keluarga Sebagai Faktor Peramal Kepada Kesejahteraan Diri’**.

Penerangan projek

Tujuan kajian ini adalah untuk menyelidiki faktor-faktor yang meramal tahap kesejahteraan diri pekerja. Di antara faktor-faktor yang dijangkakan ialah persekitaran psikososial kerja, persepsi terhadap organisasi dan konflik kerja/keluarga. Kajian ini akan menyumbang kepada ilmu dan kepakaran dari segi model yang lebih komprehensif yang berupaya meramal tahap kesejahteraan pekerja. Di akhir dapatan, kajian ini dijangka dapat menyediakan input kepada majikan, ahli psikologi organisasi dan kaunselor akan kepentingan kesejahteraan diri dari perspektif pekerja. Dengan kenalpastinya faktor-faktor peramal kepada kesejahteraan pekerja, akan membuka ruang perbincangan aspek kesejahteraan diri yang bukan sahaja memberi kesan kepada pekerja tetapi juga organisasi.

Apa saya perlu lakukan?

Anda akan diminta untuk melengkapkan soal selidik yang dijangkakan mengambil masa di antara 30-40 minit. Soal selidik ini bertujuan menyelidik persepsi anda terhadap faktor-faktor persekitaran psikososial kerja, persepsi terhadap organisasi dan konflik kerja/keluarga terhadap kesejahteraan diri anda.

Apa yang saya perolehi dari penyertaan ini?

Penyertaan anda adalah penting bagi mengkaji faktor-faktor yang meramal kesejahteraan diri anda. Kajian ini dapat memberi input kepada organisasi khususnya untuk lebih memahami pekerja. Di samping itu juga, maklumbalas anda dapat membantu mengenalpasti kesan negatif berikutan dengan ketidaksesuaian persekitaran psikososial kerja, persepsi terhadap organisasi dan juga konflik kerja/keluarga. Di samping itu juga, adalah sangat penting bagi kami untuk mendapatkan bilangan respon yang baik supaya kami dapat memperolehi data kajian yang sah untuk memberi maklumat mencukupi bagi tujuan penyelidikan ini.

Bagaimana maklumat yang saya beri akan digunakan?

Maklumat yang diberikan di dalam kajian ini akan digunakan dengan berhemat bagi memastikan ianya sulit. Identiti peribadi anda tidak akan digunakan dan data yang diperolehi akan dianalisis secara serentak tanpa mengenalpasti data individu perseorangan. Dapatan akhir kajian akan diterbitkan dalam tesis PhD dan artikel berkaitan.

Apakah potensi risiko bagi yang terlibat dalam projek ini?

Sesetengah soal selidik di dalam kajian ini mungkin boleh menyebabkan ketidakselesaan, perasaan tidak senang atau kebimbangan kepada anda. Tetapi risiko ini sangat minimum. Anda juga mungkin berasa kurang senang kerana ia memerlukan anda menghabiskan 30-40 minit untuk melengkapkan soal selidik ini. Kandungan kaji selidik ini adalah sulit dan tiada maklumat individu didedahkan kepada sesiapa jua kecuali penyelia penyelidikan ini dan pelajar yang terlibat.

Bagaimanakah projek ini dikendalikan?

Kajian ini adalah pendekatan kuantitatif, menggunakan soal selidik bagi mendapatkan data. Mangambil kira pemilihan pekerja industri pembuatan adalah berdasarkan kepada statistik bahawa mereka adalah kelompok yang paling ramai di Malaysia. Kajian yang di buat tidak akan mengkritik polisi yang telah dijalankan tetapi sekadar ingin mendapat persepsi dari anda. Selain daripada itu, kajian ini akan cuba yang terbaik untuk tidak mengganggu waktu kerja utama. Sekiranya anda memberi persetujuan untuk terlibat di dalam kajian ini, anda akan diminta untuk melengkapkan soal selidik pada masa dan tempat yang bersesuaian dengan anda.

Siapakah yang mengendalikan kajian ini?

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BAHAGIAN A: Latarbelakang demografik reponden. Tandakan [X] pada kotak yang berkaitan dengan anda.

1. Jantina	Lelaki	
	Perempuan	

2. Umur	18-29	
	30-39	
	40-49	
	50-59	
	60 ke atas	

3. Etnik	Melayu	
	Cina	
	India	
	Lain-lain	

4. Status	Berkahwin	
	Bujang	
	Duda/Janda	
	Duda/Balu	

5. Bil anak	Tiada	
	1 orang	
	2 orang	
	3 orang	
	4 orang	
	5 ke atas	

6. Tahap pendidikan	Darjah 6	
	SRP	
	SPM	
	Sijil	
	Diploma	
	Ijazah ke atas	

7. Jawatan _____

8. Status pekerjaan	Tetap	
	Sementara	
	Kontrak	

9. Sudah berapa lamakah anda bekerja di syarikat ini? Sila nyatakan. _____

BAHAGIAN B: Soalan-soalan di bawah adalah berkaitan dengan tanggapan anda terhadap persekitaran psikososial kerja. Bulatkan nombor yang sesuai menjelaskan persetujuan atau tidak dengan setiap pernyataan yang diberikan.

	Sangat Tidak Setuju	Tidak Setuju	Setuju	Sangat Setuju
1. Pekerjaan saya memerlukan saya mempelajari perkara baru.	1	2	3	4
2. Pekerjaan saya melibatkan banyak kerja berulang.	1	2	3	4
3. Pekerjaan saya memerlukan saya untuk kreatif.	1	2	3	4
4. Pekerjaan saya memerlukan tahap kemahiran yang tinggi.	1	2	3	4
5. Saya perlu melakukan kepelbagaian dalam kerja saya.	1	2	3	4
6. Saya mempunyai peluang untuk mengembangkan kemahiran saya yang tersendiri.	1	2	3	4

	Sangat Tidak Setuju	Tidak Setuju	Setuju	Sangat Setuju
7. Pekerjaan saya membenarkan saya membuat banyak keputusan sendiri.	1	2	3	4
8. Saya mempunyai sedikit kebebasan untuk menentukan bagaimana saya melakukan pekerjaan.	1	2	3	4
9. Saya mempunyai banyak perkara untuk diperkatakan tentang kerja saya.	1	2	3	4
10. Pekerjaan saya memerlukan saya bekerja dengan pantas.	1	2	3	4
11. Pekerjaan saya memerlukan saya bekerja kuat.	1	2	3	4
12. Saya tidak diminta melakukan kerja yang melebihi dari yang sepatutnya.	1	2	3	4
13. Saya mempunyai masa yang mencukupi untuk menyudahkan kerja.	1	2	3	4
14. Saya bebas dari percanggahan tuntutan kerja yang dilakukan oleh orang lain.	1	2	3	4
15. Penyelia/ketua saya mengambil berat kebajikan orang-orang di bawah beliau.	1	2	3	4
16. Penyelia/ketua saya memberi perhatian terhadap apa yang saya perkatkan.	1	2	3	4
17. Penyelia/ketua saya sangat membantu dalam memastikan kerja selesai.	1	2	3	4
18. Penyelia/ketua saya berjaya dalam memastikan pekerja bekerjasama.	1	2	3	4
19. Saya bekerja dengan rakan sekerja yang cekap dalam melakukan kerja mereka.	1	2	3	4
20. Saya bekerja dengan rakan sekerja yang memberi perhatian khusus terhadap saya.	1	2	3	4
21. Saya bekerja dengan rakan sekerja yang peramah.	1	2	3	4

	Sangat Tidak Setuju	Tidak Setuju	Setuju	Sangat Setuju
22. Saya bekerja dengan rakan sekerja yang membantu dalam memastikan kerja selesai.	1	2	3	4

BAHAGIAN C: Soalan-soalan di bawah adalah berkaitan dengan persepsi pekerja terhadap organisasi. Bulatkan nombor yang sesuai menjelaskan persetujuan atau tidak dengan setiap pernyataan yang diberikan.

	Sangat Tidak Setuju	Tidak Setuju	Neutral	Setuju	Sangat Setuju
1. Prosidur organisasi dibentuk untuk mengumpul maklumat yang tepat bagi membuat keputusan.	1	2	3	4	5
2. Prosidur organisasi dibentuk bagi memberi peluang untuk rayuan atau mencabar keputusan yang dibuat.	1	2	3	4	5
3. Prosidur organisasi dibentuk agar keputusan yang dibuat melibatkan semua pihak.	1	2	3	4	5
4. Prosidur organisasi dibentuk untuk melahirkan satu standard agar keputusan yang dibuat adalah konsisten.	1	2	3	4	5
5. Prosidur organisasi dibentuk untuk mengambil kira semua pihak yang terlibat dengan keputusan yang dibuat.	1	2	3	4	5
6. Prosidur organisasi menyediakan maklumbalas yang berguna mengenai keputusan yang dibuat dan pelaksanaannya.	1	2	3	4	5
7. Prosidur organisasi dibentuk untuk membenarkan permintaan untuk penjelasan atau maklumat tambahan yang diperlukan berikutan keputusan yang dibuat.	1	2	3	4	5
8. Penyelia/ketua anda mengambil kira pandangan anda.	1	2	3	4	5
9. Penyelia/ketua anda mampu untuk mengenyahkan kecenderungan beliau untuk menyebelahi satu pihak.	1	2	3	4	5

	Sangat Tidak Setuju	Tidak Setuju	Neutral	Setuju	Sangat Setuju
10. Penyelia/ketua anda memberi maklumbalas tentang keputusan yang dibuat dan implikasinya.	1	2	3	4	5
11. Penyelia/ketua anda melayan anda dengan baik dan bertimbangrasa.	1	2	3	4	5
12. Penyelia/ketua anda menunjukkan sikap ambil berat terhadap hak anda sebagai pekerja.	1	2	3	4	5
13. Penyelia/ketua anda mengambil langkah berdepan dengan anda dengan cara yang betul.	1	2	3	4	5
14. Anda diberi ganjaran yang sesuai dengan tanggungjawab anda.	1	2	3	4	5
15. Anda diberi ganjaran yang sesuai dengan pengalaman anda.	1	2	3	4	5
16. Anda diberi ganjaran yang sesuai dengan usaha yang anda lakukan.	1	2	3	4	5
17. Anda diberi ganjaran yang sesuai dengan kerja yang anda lakukan.	1	2	3	4	5
18. Anda diberi ganjaran yang sesuai dengan tekanan dan ketegangan kerja anda.	1	2	3	4	5

BAHAGIAN D: Soalan-soalan di bawah adalah berkaitan dengan konflik keluarga. Bulatkan nombor yang menggambarkan sejauh manakah anda bersetuju atau tidak bersetuju dengan pernyataan-pernyataan berikut.

1= Sangat tidak setuju 4= Neutral 5= Sederhana setuju
2= Tidak setuju 6= Setuju
3= Sederhana tidak setuju 7= Sangat tidak setuju

1. Tuntutan-tuntutan kerja mengganggu kehidupan berkeluarga saya.	1	2	3	4	5	6	7
2. Masa yang diperuntukan untuk kerja menyebabkan sukar bagi saya menyempurnakan tanggungjawab keluarga.	1	2	3	4	5	6	7
3. Perkara-perkara yang saya mahu lakukan di rumah tidak dapat disempurnakan kerana tuntutan kerja ke atas saya.	1	2	3	4	5	6	7

1= Sangat tidak setuju 4= Neutral 5= Sederhana setuju
 2= Tidak setuju 6= Setuju
 3= Sederhana tidak setuju 7= Sangat setuju

4. Kerja saya menyebabkan tekanan yang menyukarkan saya untuk menyempurnakan tugas-tugas keluarga.	1	2	3	4	5	6	7
5. Disebabkan oleh tugas-tugas berkaitan dengan kerja, saya terpaksa menukar rancangan aktiviti keluarga	1	2	3	4	5	6	7
6. Tuntutan-tuntutan dari keluarga/pasangan mengganggu aktiviti-aktiviti berkaitan dengan kerja.	1	2	3	4	5	6	7
7. Saya terpaksa menangguhkan perkara-perkara di tempat kerja disebabkan tuntutan masa di rumah.	1	2	3	4	5	6	7
8. Perkara-perkara yang saya mahu lakukan di tempat kerja tidak dapat diselesaikan disebabkan oleh tuntutan-tuntutan keluarga/pasangan saya.	1	2	3	4	5	6	7
9. Kehidupan di rumah mengganggu tanggungjawab-tanggungjawab di tempat kerja seperti untuk tiba di tempat kerja pada masanya, menyempurnakan tugas-tugas harian dan bekerja lebih masa.	1	2	3	4	5	6	7
10. Tegangan berkaitan dengan keluarga mengganggu keupayaan saya untuk melakukan tugas-tugas berkaitan dengan kerja.	1	2	3	4	5	6	7

BAHAGIAN E: Soalan-soalan di bawah adalah berkaitan dengan kepuasan kerja. Sila bulatkan nombor yang paling hampir dengan pandangan anda mengenainya.

1= Sangat tidak setuju 4= Kurang setuju
 2= Sederhana tidak setuju 5= Sederhana setuju
 3= Kurang tidak setuju 6= Sangat setuju

1. Saya rasa saya diberi bayaran yang mencukupi dengan kerja yang saya lakukan.	1	2	3	4	5	6
2. Terlalu sedikit peluang untuk kenaikan pada pekerjaan saya.	1	2	3	4	5	6
3. Penyelia/ketua saya agak cekap dalam melakukan kerja beliau.	1	2	3	4	5	6
4. Saya tidak berpuas hati dengan faedah-faedah/kemudahan-kemudahan yang saya terima.	1	2	3	4	5	6

1= Sangat tidak setuju 4= Kurang setuju
 2= Sederhana tidak setuju 5= Sederhana setuju
 3= Kurang tidak setuju 6= Sangat setuju

5. Apabila saya melakukan kerja dengan baik, saya menerima penghargaan yang sepatutnya.	1	2	3	4	5	6
6. Kebanyakan peraturan dan prosidur menyebabkan kerja menjadi sukar.	1	2	3	4	5	6
7. Saya menyenangi orang-orang yang saya bekerja dengan mereka.	1	2	3	4	5	6
8. Kadang-kadang saya berasa kerja saya tidak bermakna.	1	2	3	4	5	6
9. Komunikasi di dalam organisasi ini berjalan dengan baik.	1	2	3	4	5	6
10. Kenaikan gaji adalah tidak banyak dan jarang-jarang.	1	2	3	4	5	6
11. Orang yang menjalankan kerja dengan baik mempunyai peluang yang adil untuk kenaikan.	1	2	3	4	5	6
12. Penyelia/ketua saya tidak adil terhadap saya.	1	2	3	4	5	6
13. Kemudahan-kemudahan yang kami terima adalah baik sama dengan kebanyakan yang ditawarkan oleh organisasi lain.	1	2	3	4	5	6
14. Saya tidak berasa kerja yang saya lakukan dihargai.	1	2	3	4	5	6
15. Usaha yang saya lakukan untuk menjalankan kerja dengan baik jarang-jarang sekali dihalang oleh prosidur.	1	2	3	4	5	6
16. Saya mendapati bahawa saya perlu bekerja dengan kuat kerana saya bekerja dengan orang yang tidak cekap.	1	2	3	4	5	6
17. Saya suka melakukan perkara-perkara yang saya lakukan di tempat kerja.	1	2	3	4	5	6

1= Sangat tidak setuju 4= Kurang setuju
 2= Sederhana tidak setuju 5= Sederhana setuju
 3= Kurang tidak setuju 6= Sangat setuju

18. Matlamat organisasi adalah tidak begitu jelas bagi saya.	1	2	3	4	5	6
19. Saya berasa tidak dihargai oleh organisasi apabila memikirkan tentang gaji yang dibayar kepada saya.	1	2	3	4	5	6
20. Orang-orang di sini boleh maju ke depan dengan cepat seperti mana mereka di tempat lain.	1	2	3	4	5	6
21. Penyelia/ketua saya menunjukkan kurang minat dalam mendalami perasaan orang di bawahnya.	1	2	3	4	5	6
22. Faedah-faedah/kemudahan-kemudahan yang kami perolehi adalah sama rata.	1	2	3	4	5	6
23. Tidak banyak ganjaran yang diperolehi oleh pekerja di sini.	1	2	3	4	5	6
24. Terlalu banyak kerja yang saya perlu lakukan di tempat kerja.	1	2	3	4	5	6
25. Saya menyenangi rakan sekerja.	1	2	3	4	5	6
26. Kadang-kala saya berasa yang saya tidak tahu apa yang berlaku di organisasi.	1	2	3	4	5	6
27. Saya bangga melaksanakan tugas saya.	1	2	3	4	5	6
28. Saya berasa puas hati dengan peluang kenaikan gaji saya.	1	2	3	4	5	6
29. Terdapat faedah-faedah/kemudahan-kemudahan yang sepatutnya tetapi kami tidak dapat.	1	2	3	4	5	6
30. Saya menyenangi penyelia/ketua saya.	1	2	3	4	5	6
31. Saya mempunyai terlalu banyak kertas kerja.	1	2	3	4	5	6
32. Saya tidak berasa usaha saya diberi ganjaran yang sepatutnya.	1	2	3	4	5	6

1= Sangat tidak setuju 4= Kurang setuju
 2= Sederhana tidak setuju 5= Sederhana setuju
 3= Kurang tidak setuju 6= Sangat setuju

33. Saya berpuas hati dengan peluang kenaikan yang diberikan.	1	2	3	4	5	6
34. Terlalu banyak perkelahian dan pergaduhan di tempat kerja saya.	1	2	3	4	5	6
35. Kerja saya menyeronokkan.	1	2	3	4	5	6
36. Tugas kerja tidak dijelaskan dengan betul.	1	2	3	4	5	6

BAHAGIAN F: Bahagian ini ialah mengenai apa yang berlaku di tempat kerja pada minggu yang lepas. Sila bulatkan nombor yang sesuai pada skala 1 hingga 6 di mana 1 bermaksud anda tidak pernah berasa sedemikian pada minggu yang lepas 6 menunjukkan anda berasa demikian pada kebanyakan masa.

Anda tidak pernah berasa demikian pada minggu yang lepas	1	2	3	4	5	6	Anda berasa demikian pada kebanyakan masa pada minggu yang lepas
--	----------	----------	----------	----------	----------	----------	--

Memikirkan minggu yang lepas, berapa banyak masa kerja anda telah menyebabkan anda berasa setiap di antara berikut?

1. Cemas	1	2	3	4	5	6
2. Bimbang	1	2	3	4	5	6
3. Tegang	1	2	3	4	5	6
4. Rilek	1	2	3	4	5	6
5. Selesa	1	2	3	4	5	6
6. Tenang	1	2	3	4	5	6
7. Tertekan	1	2	3	4	5	6
8. Teruk	1	2	3	4	5	6
9. Suram	1	2	3	4	5	6
10. Gembira	1	2	3	4	5	6
11. Senang	1	2	3	4	5	6
12. Ceria	1	2	3	4	5	6
13. Bosan	1	2	3	4	5	6

Anda tidak pernah merasa demikian pada minggu yang lepas	1	2	3	4	5	6	Anda merasa demikian pada kebanyakan masa pada minggu yang lepas
--	---	---	---	---	---	---	--

Memikirkan minggu yang lepas, berapa banyak masa kerja anda telah menyebabkan anda merasa setiap di antara berikut?

14. Lembap	1	2	3	4	5	6
15. Tidak bersemangat	1	2	3	4	5	6
16. Bersemangat	1	2	3	4	5	6
17. Berfikiran positif	1	2	3	4	5	6
18. Bermotivasi	1	2	3	4	5	6
19. Penat	1	2	3	4	5	6
20. Terlalu penat	1	2	3	4	5	6
21. Mengantuk	1	2	3	4	5	6
22. Aktif	1	2	3	4	5	6
23. Sedar	1	2	3	4	5	6
24. Penuh bertenaga	1	2	3	4	5	6
25. Marah	1	2	3	4	5	6
26. Terganggu	1	2	3	4	5	6
27. Agresif	1	2	3	4	5	6
28. Tenteram	1	2	3	4	5	6
29. Sabar	1	2	3	4	5	6
30. Mudah	1	2	3	4	5	6

BAHAGIAN G: Soalan-soalan di bawah adalah berkaitan dengan kepuasan dalam hidup anda. Bulatkan nombor yang sesuai menjelaskan persetujuan atau tidak dengan setiap pernyataan yang diberikan.

1= Sangat tidak setuju

4= Neutral

5= Sederhana setuju

2= Tidak setuju

6= Setuju

3= Sederhana tidak setuju

7= Sangat setuju

1. Dalam kebanyakan perkara kehidupan saya adalah hampir sempurna.	1	2	3	4	5	6	7
2. Keadaan kehidupan saya adalah cemerlang.	1	2	3	4	5	6	7

1= Sangat tidak setuju 4= Neutral 5= Sederhana setuju
 2= Tidak setuju 6= Setuju
 3= Sederhana tidak setuju 7= Sangat setuju

3.Saya berpuas hati dengan kehidupan saya.	1	2	3	4	5	6	7
4. Setakat ini saya telah memperolehi perkara-perkara penting yang saya mahu dalam kehidupan saya.	1	2	3	4	5	6	7
5. Jika saya boleh mengulang kehidupan, saya tidak akan mengubah apa-apa dalam kehidupan saya yang lepas.	1	2	3	4	5	6	7

BAHAGIAN H: Perkataan-perkataan berikut menggambarkan pelbagai perasaan dan emosi. Sila kenalpasti perasaan yang anda alami pada masa sekarang dengan membulatkan nombor yang sesuai.

	Langsung Tidak /Sedikit Sangat	Sedikit	Sederhana	Agak Banyak	Sangat Banyak
1. Berminat	1	2	3	4	5
2. Tertekan	1	2	3	4	5
3. Teruja	1	2	3	4	5
4. Sedih	1	2	3	4	5
5. Tabah	1	2	3	4	5
6. Bersalah	1	2	3	4	5
7. Takut dan bimbang	1	2	3	4	5
8. Bermusuhan/dingin	1	2	3	4	5
9. Bersemangat	1	2	3	4	5
10. Bangga	1	2	3	4	5
11.Cepat marah/meradang	1	2	3	4	5
12. Sedar	1	2	3	4	5
13. Malu	1	2	3	4	5
14. Terdorong	1	2	3	4	5
15. Gementar	1	2	3	4	5
16. Cekal	1	2	3	4	5
17. Penuh perhatian	1	2	3	4	5

	Langsung Tidak /Sedikit Sangat	Sedikit	Sederhana	Agak Banyak	Sangat Banyak
18 Terlalu bimbang/gugup	1	2	3	4	5
19. Aktif	1	2	3	4	5
20. Takut					

BAHAGIAN I: Soalan-soalan di bawah adalah berkaitan dengan apa yang anda rasai dan alami ketika bulan lepas. Sila bulatkan nombor yang sesuai menunjukkan berapa kerap anda telah merasai dan mengalami perkara berikut.

0= Tidak pernah

4= 2x atau 3x seminggu

1= 1x atau 2 kali

5= Hampir setiap hari

2= 1x seminggu

6= Setiap hari

1. Anda berasa gembira	0	1	2	3	4	5
2. Anda berasa berminat dalam kehidupan anda	0	1	2	3	4	5
3. Anda berasa puas hati	0	1	2	3	4	5
4. Anda berasa anda memiliki sesuatu untuk disumbangkan kepada masyarakat	0	1	2	3	4	5
5. Anda berasa anda adalah milik komuniti (seperti kumpulan sosial atau kejiranan)	0	1	2	3	4	5
6. Anda berasa masyarakat anda adalah tempat yang lebih baik untuk orang seperti anda	0	1	2	3	4	5
7. Anda berasa secara amnya orang-orang adalah baik	0	1	2	3	4	5
8. Anda berasa cara masyarakat anda bertindak adalah wajar bagi anda.	0	1	2	3	4	5
9. Anda rasa anda menyenangi hampir kesemua personaliti anda.	0	1	2	3	4	5
10. Anda rasa anda bijak dalam mengurus tanggungjawab dalam kehidupan harian.	0	1	2	3	4	5
11. Anda rasa anda memiliki hubungan yang baik dan saling percaya dengan rakan anda	0	1	2	3	4	5

0= Tidak pernah
 1= 1x atau 2 kali
 2= 1x seminggu

4= 2x atau 3x seminggu
 5= Hampir setiap hari
 6= Setiap hari

12. Anda rasa anda berdepan dengan pengalaman yang mencabar anda untuk bangkit menjadi manusia yang lebih baik.	0	1	2	3	4	5
13. Anda rasa anda yakin untuk berfikir atau menyatakan idea dan pendapat anda sendiri.	0	1	2	3	4	5
14. Anda rasa kehidupan anda mempunyai tujuan dan bermakna.	0	1	2	3	4	5

Appendix C1: Factor analysis of psychosocial work environment

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	.858
Bartlett's Test of Sphericity	Approx. Chi-Square
	6806.911
	df
	231
	Sig.
	.000

Communalities

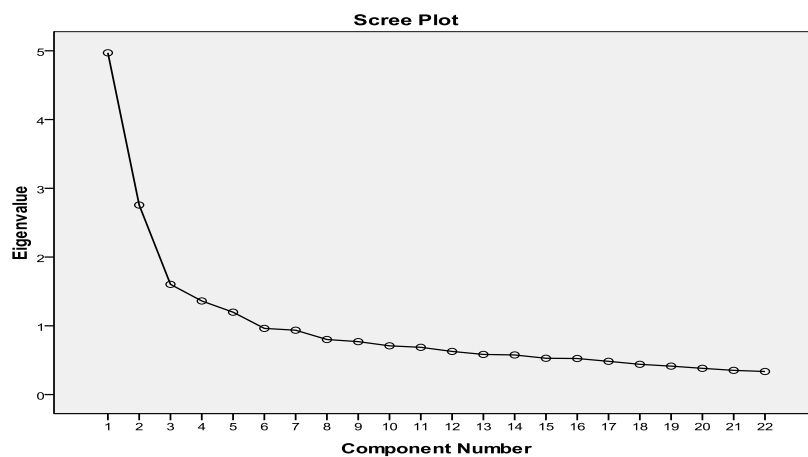
	Initial	Extraction
CONTROL1	1.000	.388
CONTROL3	1.000	.477
CONTROL4	1.000	.488
CONTROL5	1.000	.458
CONTROL6	1.000	.516
CONTROL7	1.000	.366
CONTROL9	1.000	.319
DEMANDS1	1.000	.548
DEMANDS2	1.000	.533
SUPPORT1	1.000	.698
SUPPORT2	1.000	.704
SUPPORT3	1.000	.712
SUPPORT4	1.000	.648
SUPPORT5	1.000	.582
SUPPORT6	1.000	.546
SUPPORT7	1.000	.595
SUPPORT8	1.000	.660
R_DEMANDS3	1.000	.397
R_DEMANDS4	1.000	.393
R_DEMANDS5	1.000	.395
R_CONTROL2	1.000	.127
R_CONTROL8	1.000	.141

Extraction Method: Principal Component Analysis.

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	4.970	22.593	22.593	4.970	22.593	22.593	3.489	15.858	15.858
2	2.757	12.530	35.123	2.757	12.530	35.123	2.824	12.838	28.695
3	1.603	7.286	42.409	1.603	7.286	42.409	2.620	11.910	40.605
4	1.361	6.188	48.597	1.361	6.188	48.597	1.758	7.992	48.597
5	1.198	5.446	54.043						
6	.962	4.375	58.418						
7	.936	4.255	62.673						
8	.801	3.640	66.313						
9	.770	3.499	69.812						
10	.709	3.222	73.034						
11	.687	3.124	76.158						
12	.627	2.852	79.010						
13	.584	2.654	81.663						
14	.576	2.618	84.281						
15	.528	2.399	86.680						
16	.524	2.384	89.064						
17	.484	2.198	91.262						
18	.440	2.000	93.262						
19	.413	1.879	95.141						
20	.382	1.734	96.876						
21	.352	1.600	98.475						
22	.335	1.525	100.000						

Extraction Method: Principal Component Analysis.



Rotated Component Matrix^a

	Component			
	1	2	3	4
CONTROL4	.696			
CONTROL6	.682			
CONTROL3	.680			
CONTROL5	.657			
CONTROL1	.594			
CONTROL7	.567			
CONTROL9	.548			
R_CONTROL8	-.332			
R_CONTROL2	-.317			
SUPPORT2		.815		
SUPPORT1		.814		
SUPPORT3		.806		
SUPPORT4		.725	.333	
SUPPORT8			.791	
SUPPORT7			.763	
SUPPORT6			.696	
SUPPORT5			.694	
R_DEMANDS3				.592
DEMANDS2	.397			.570
DEMANDS1	.411			.563
R_DEMANDS4				.546
R_DEMANDS5				.536

Component Transformation Matrix

Component	1	2	3	4
1	.608	.577	.527	-.140
2	.749	-.411	-.303	.423
3	-.199	-.322	.733	.566
4	-.171	.628	-.307	.694

Appendix C2: Factor analysis of organisational justice

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	.915
Bartlett's Test of Sphericity	Approx. Chi-Square
	12042.234
	df
	153
	Sig.
	.000

Communalities

	Initial	Extraction
PROCEDURAL1	1.000	.473
PROCEDURAL2	1.000	.358
PROCEDURAL3	1.000	.651
PROCEDURAL4	1.000	.666
PROCEDURAL5	1.000	.699
PROCEDURAL6	1.000	.648
PROCEDURAL7	1.000	.575
INTERACTIONAL1	1.000	.607
INTERACTIONAL2	1.000	.268
INTERACTIONAL3	1.000	.612
INTERACTIONAL4	1.000	.714
INTERACTIONAL5	1.000	.721
INTERACTIONAL6	1.000	.575
DISTRIBUTIVE1	1.000	.744
DISTRIBUTIVE2	1.000	.820
DISTRIBUTIVE3	1.000	.864
DISTRIBUTIVE4	1.000	.827
DISTRIBUTIVE5	1.000	.634

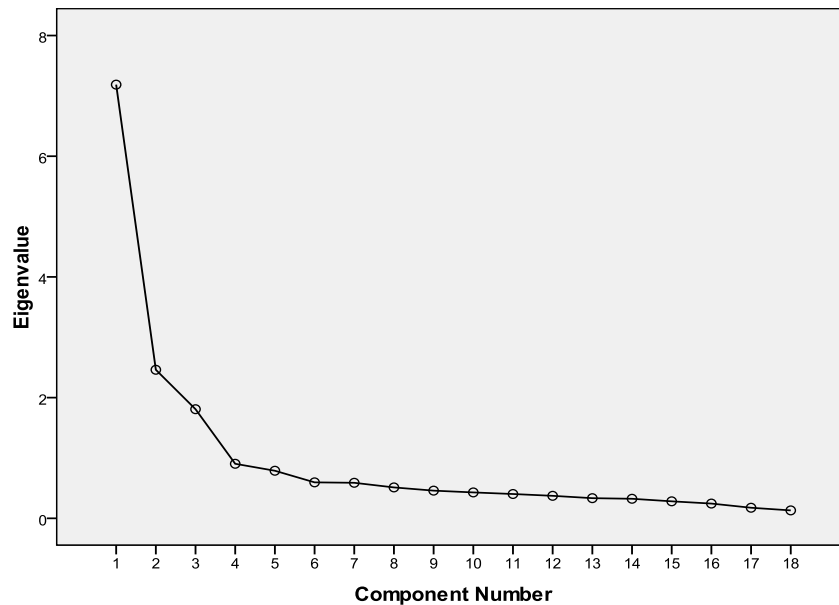
Extraction Method: Principal Component Analysis.

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	7.186	39.923	39.923	7.186	39.923	39.923	4.043	22.459	22.459
2	2.461	13.675	53.598	2.461	13.675	53.598	3.909	21.716	44.175
3	1.808	10.046	63.644	1.808	10.046	63.644	3.504	19.468	63.644
4	.904	5.021	68.665						
5	.788	4.380	73.045						
6	.596	3.311	76.356						
7	.589	3.271	79.627						
8	.512	2.845	82.472						
9	.459	2.549	85.021						
10	.429	2.385	87.406						
11	.403	2.238	89.644						
12	.373	2.072	91.716						
13	.334	1.856	93.572						
14	.324	1.800	95.372						
15	.282	1.565	96.937						
16	.245	1.359	98.296						
17	.175	.974	99.270						
18	.131	.730	100.000						

Extraction Method: Principal Component Analysis.

Scree Plot



Rotated Component Matrix^a

	Component		
	1	2	3
PROCEDURAL5	.818		
PROCEDURAL4	.789		
PROCEDURAL3	.780		
PROCEDURAL6	.757		
PROCEDURAL7	.695		
PROCEDURAL1	.644		
PROCEDURAL2	.574		
DISTRIBUTIVE3		.899	
DISTRIBUTIVE4		.878	
DISTRIBUTIVE2		.864	
DISTRIBUTIVE1		.812	
DISTRIBUTIVE5		.770	
INTERACTIONAL4			.814
INTERACTIONAL5			.787
INTERACTIONAL3			.747
INTERACTIONAL1			.731
INTERACTIONAL6			.674
INTERACTIONAL2			.498

Component Transformation Matrix

Component	1	2	3
1	.602	.568	.561
2	.663	-.747	.045
3	-.445	-.345	.826

Appendix C3: Factor analysis of work family conflict

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.903
Bartlett's Test of Sphericity	Approx. Chi-Square	9093.819
	df	45
	Sig.	.000

Communalities

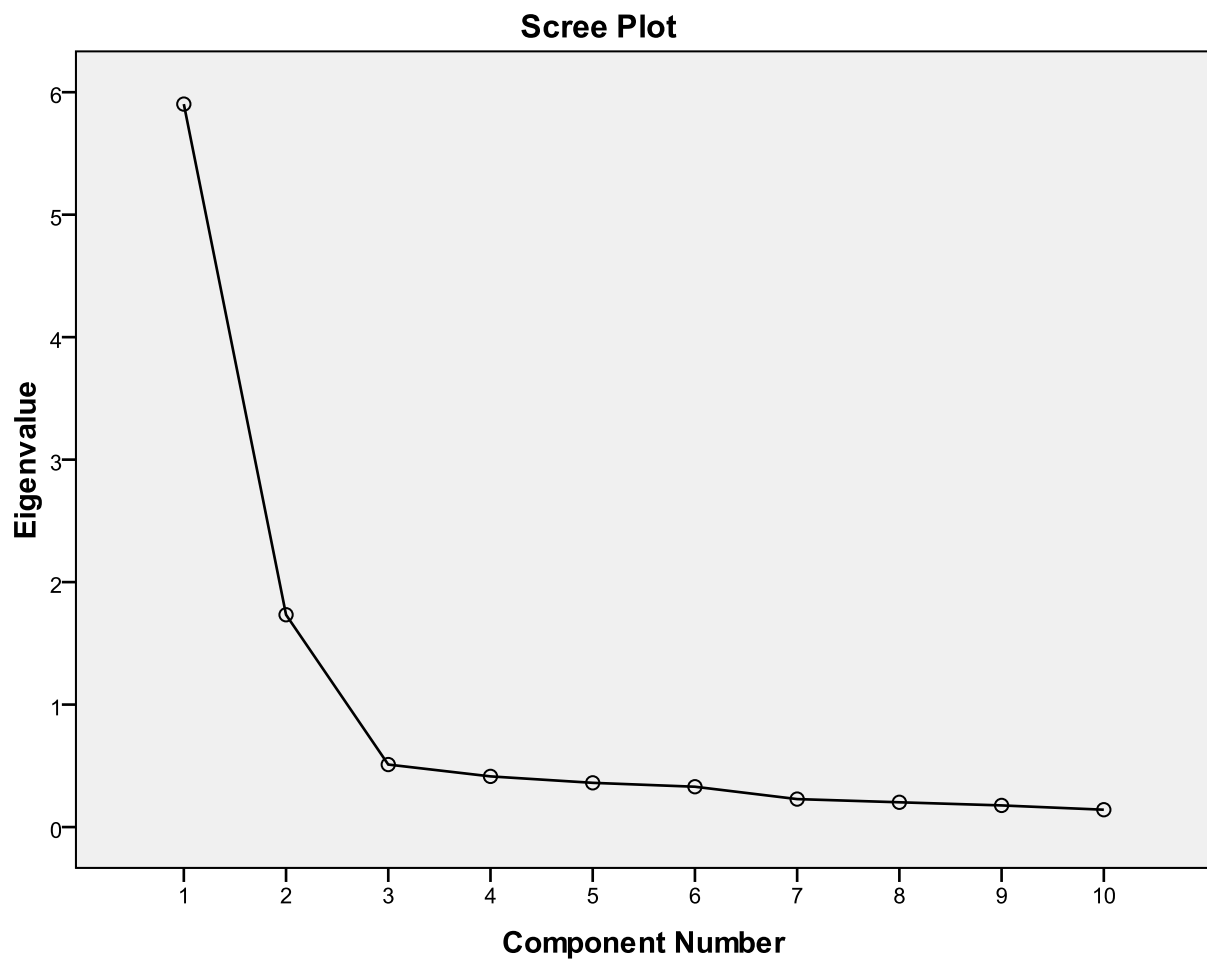
	Initial	Extraction
WFC1	1.000	.671
WFC2	1.000	.827
WFC3	1.000	.837
WFC4	1.000	.815
WFC5	1.000	.680
FWC1	1.000	.659
FWC2	1.000	.770
FWC3	1.000	.819
FWC4	1.000	.766
FWC5	1.000	.793

Extraction Method: Principal Component Analysis.

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	5.903	59.028	59.028	5.903	59.028	59.028	3.851	38.511	38.511
2	1.733	17.334	76.362	1.733	17.334	76.362	3.785	37.850	76.362
3	.510	5.105	81.466						
4	.414	4.138	85.604						
5	.361	3.612	89.216						
6	.329	3.293	92.509						
7	.228	2.284	94.793						
8	.202	2.023	96.817						
9	.177	1.767	98.584						
10	.142	1.416	100.000						

Extraction Method: Principal Component Analysis.



Rotated Component Matrix^a

	Component	
	1	2
WFC2	.887	
WFC3	.883	
WFC4	.855	
WFC5	.781	
WFC1	.778	
FWC3		.879
FWC5		.855
FWC4		.848
FWC2		.844
FWC1	.352	.732

Component Transformation Matrix

Component	1	2
1	.713	.701
2	-.701	.713

Appendix C4: Factor analysis of job satisfaction

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.873
Bartlett's Test of Sphericity	Approx. Chi-Square	11978.444
	df	630
	Sig.	.000

Communalities

	Initial	Extraction
JOBSATIS1	1.000	.538
JOBSATIS3	1.000	.403
JOBSATIS5	1.000	.561
JOBSATIS7	1.000	.456
JOBSATIS9	1.000	.381
JOBSATIS11	1.000	.374
JOBSATIS13	1.000	.371
JOBSATIS15	1.000	.228
JOBSATIS17	1.000	.271
JOBSATIS20	1.000	.334
JOBSATIS22	1.000	.320
JOBSATIS25	1.000	.496
JOBSATIS27	1.000	.423
JOBSATIS28	1.000	.630
JOBSATIS30	1.000	.419
JOBSATIS33	1.000	.546
JOBSATIS35	1.000	.470
R_JOBSATIS2	1.000	.266
R_JOBSATIS4	1.000	.429
R_JOBSATIS6	1.000	.344
R_JOBSATIS8	1.000	.332
R_JOBSATIS10	1.000	.378
R_JOBSATIS12	1.000	.493

R_JOBSATIS14	1.000	.449
R_JOBSATIS16	1.000	.359
R_JOBSATIS18	1.000	.489
R_JOBSATIS19	1.000	.582
R_JOBSATIS21	1.000	.403
R_JOBSATIS23	1.000	.479
R_JOBSATIS24	1.000	.395
R_JOBSATIS26	1.000	.371
R_JOBSATIS29	1.000	.316
R_JOBSATIS31	1.000	.182
R_JOBSATIS32	1.000	.382
R_JOBSATIS34	1.000	.313
R_JOBSATIS36	1.000	.466

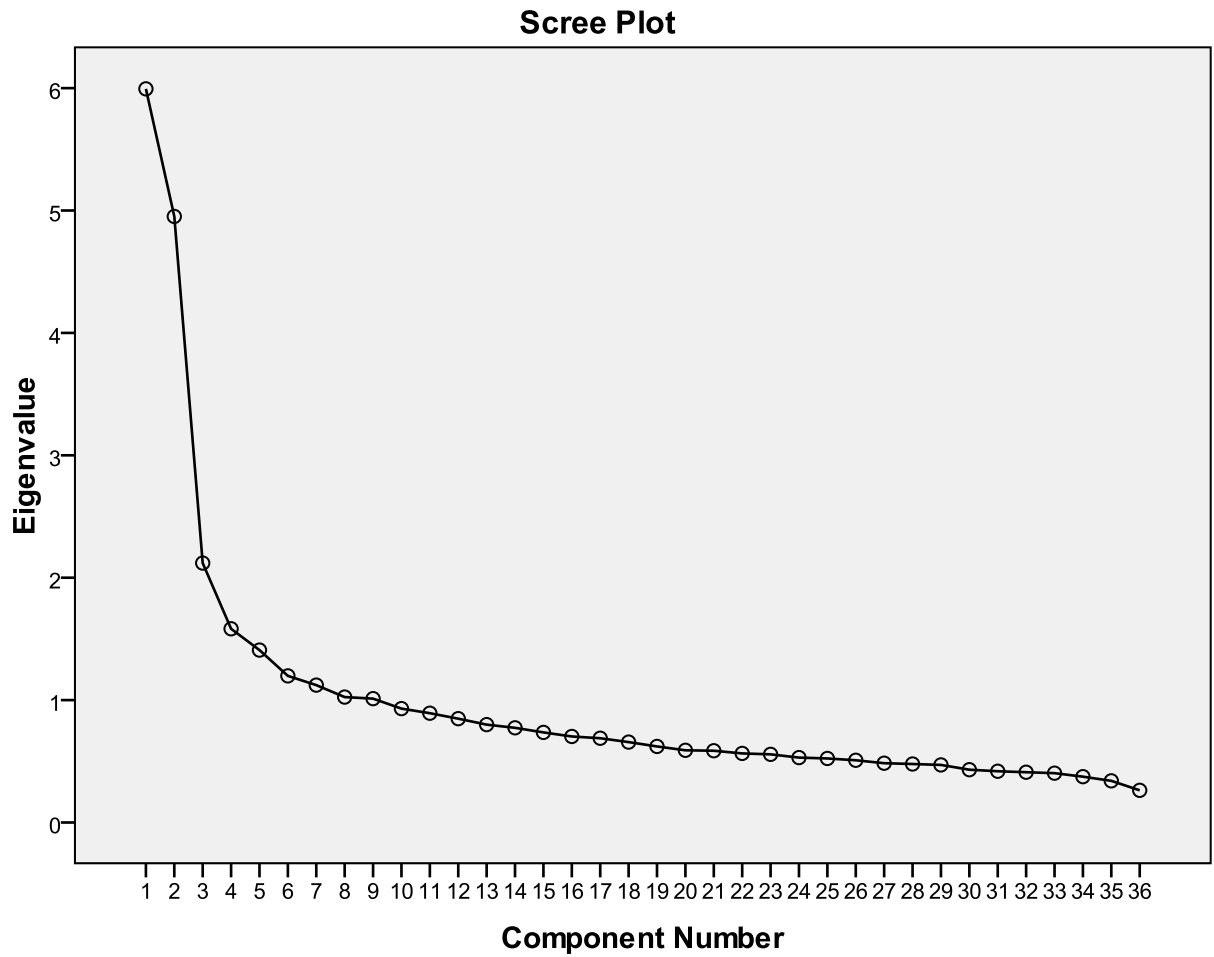
Extraction Method: Principal Component
Analysis.

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
							Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	5.994	16.650	16.650	5.994	16.650	16.650	4.505	12.514	12.514
2	4.952	13.754	30.404	4.952	13.754	30.404	3.686	10.239	22.753
3	2.120	5.888	36.292	2.120	5.888	36.292	3.436	9.545	32.299
4	1.583	4.396	40.689	1.583	4.396	40.689	3.020	8.390	40.689
5	1.409	3.913	44.602						
6	1.198	3.328	47.930						
7	1.123	3.118	51.048						
8	1.025	2.847	53.895						
9	1.012	2.811	56.706						
10	.931	2.585	59.291						
11	.893	2.481	61.771						
12	.848	2.357	64.128						
13	.800	2.221	66.349						

14	.774	2.149	68.498					
15	.736	2.045	70.543					
16	.703	1.952	72.495					
17	.688	1.912	74.408					
18	.657	1.825	76.233					
19	.622	1.726	77.959					
20	.590	1.639	79.598					
21	.586	1.629	81.227					
22	.564	1.568	82.795					
23	.557	1.547	84.342					
24	.530	1.473	85.815					
25	.523	1.453	87.268					
26	.508	1.412	88.681					
27	.485	1.346	90.027					
28	.478	1.328	91.354					
29	.470	1.307	92.661					
30	.431	1.198	93.860					
31	.419	1.163	95.023					
32	.411	1.141	96.164					
33	.403	1.120	97.284					
34	.374	1.040	98.324					
35	.340	.945	99.270					
36	.263	.730	100.000					

Extraction Method: Principal Component Analysis.



Rotated Component Matrix^a

		Component			
		dimension1			
		1	2	3	4
dimension0	R_JOBSATIS12	.684			
	R_JOBSATIS36	.672			
	R_JOBSATIS14	.619			
	R_JOBSATIS21	.595			
	R_JOBSATIS16	.585			
	R_JOBSATIS18	.537			.432
	R_JOBSATIS19	.515	.345		.409
	R_JOBSATIS24	.506			

R_JOBSATIS32	.504			
R_JOBSATIS34	.491			
R_JOBSATIS8	.428			
R_JOBSATIS31	.424			
JOBSATIS15	-.337		.326	
JOBSATIS5		.721		
JOBSATIS28		.719		
JOBSATIS1		.713		
JOBSATIS33		.659		
JOBSATIS22		.525		
JOBSATIS11		.487		
JOBSATIS13		.447	.309	
JOBSATIS20		.423	.335	
JOBSATIS25			.664	
JOBSATIS7			.631	
JOBSATIS35			.617	
JOBSATIS27			.612	
JOBSATIS30			.609	
JOBSATIS17			.479	
JOBSATIS9		.360	.435	
JOBSATIS3	.303	.333	.370	
R_JOBSATIS4				.629
R_JOBSATIS23				.615
R_JOBSATIS10				.567
R_JOBSATIS6				.495
R_JOBSATIS26	.386			.460
R_JOBSATIS2				.437
R_JOBSATIS29				.397

Component Transformation Matrix

Component		dimension1			
		1	2	3	4
dimension0	1	.764	.385	.140	.499
	2	-.262	.615	.694	-.268
	3	.470	-.572	.521	-.424
	4	-.357	-.382	.477	.706

Appendix C5: Factor analysis of job affective wellbeing

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.908
Bartlett's Test of Sphericity	Approx. Chi-Square	19779.816
	df	435
	Sig.	.000

Communalities

	Initial	Extraction
ANXIETY-COMFORT4	1.000	.643
ANXIETY-COMFORT5	1.000	.749
ANGRY-PLACID1	1.000	.708
DEPRESSION-PLEASURE4	1.000	.670
DEPRESSION-PLEASURE5	1.000	.695
DEPRESSION-PLEASURE6	1.000	.706
BORED-ENTHUSIASTIC4	1.000	.600
BORED-ENTHUSIASTIC5	1.000	.626
BORED-ENTHUSIASTIC6	1.000	.587
TIREDNESS-VIGOUR4	1.000	.541
TIREDNESS-VIGOUR5	1.000	.561
TIREDNESS-VIGOUR6	1.000	.563
ANGRY-PLACID5	1.000	.628
ANGRY-PLACID6	1.000	.580
ANXIETY-COMFORT6	1.000	.649
R_ANXIETY-COMFORT1	1.000	.748
R_ANXIETY-COMFORT2	1.000	.740
R_ANXIETY-COMFORT3	1.000	.631
R_DEPRESSION-PLEASURE1	1.000	.609
R_DEPRESSION-PLEASURE2	1.000	.592
R_DEPRESSION-PLEASURE3	1.000	.557
R_BORED-ENTHUSIASTIC1	1.000	.543
R_BORED-ENTHUSIASTIC2	1.000	.590
R_BORED-ENTHUSIASTIC3	1.000	.619
R_TIREDNESS-VIGOUR1	1.000	.734
R_TIREDNESS-VIGOUR2	1.000	.733
R_TIREDNESS-VIGOUR3	1.000	.580
R_ANGRY-PLACID2	1.000	.451
R_ANGRY-PLACID3	1.000	.562
R_ANGRY-PLACID4	1.000	.384

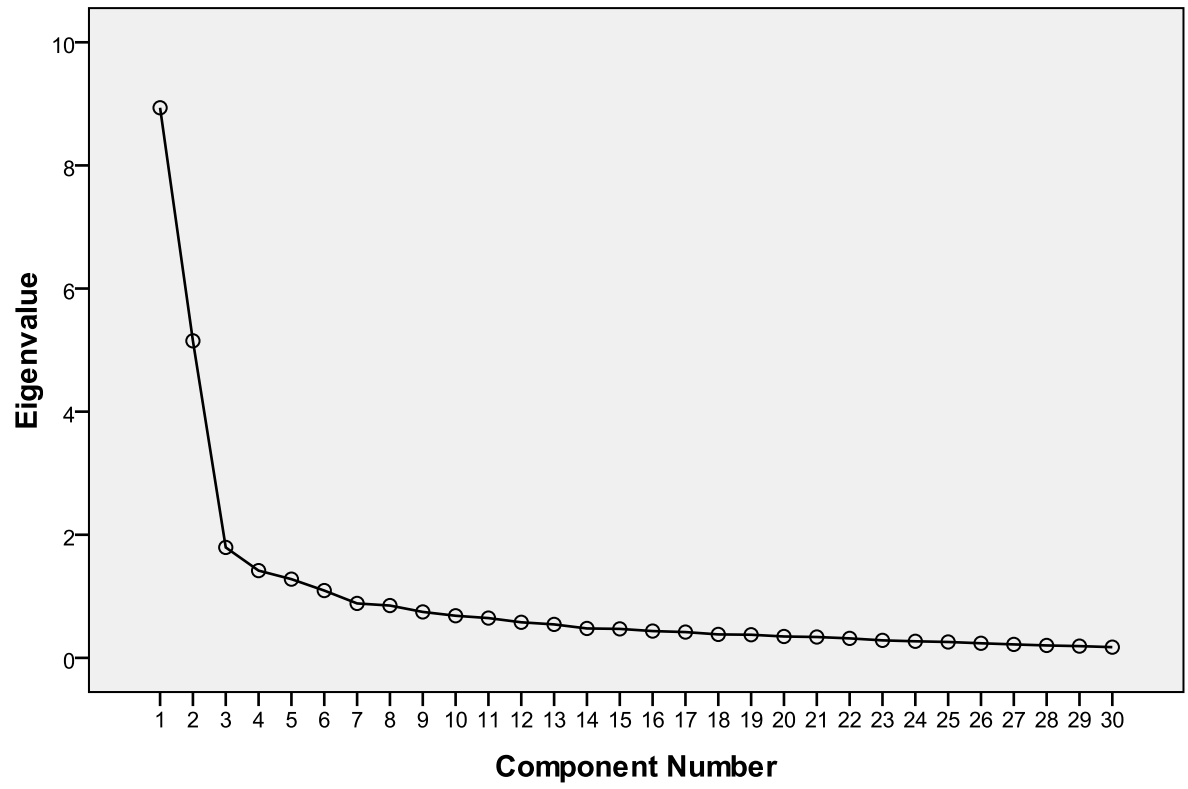
Extraction Method: Principal Component Analysis.

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	8.937	29.788	29.788	8.937	29.788	29.788	5.382	17.939	17.939
2	5.150	17.166	46.955	5.150	17.166	46.955	4.731	15.768	33.708
3	1.794	5.980	52.935	1.794	5.980	52.935	4.536	15.118	48.826
4	1.417	4.725	57.660	1.417	4.725	57.660	2.068	6.892	55.718
5	1.279	4.263	61.923	1.279	4.263	61.923	1.861	6.204	61.923
6	1.093	3.645	65.567						
7	.884	2.948	68.516						
8	.850	2.833	71.348						
9	.746	2.488	73.837						
10	.684	2.280	76.117						
11	.646	2.155	78.272						
12	.578	1.927	80.198						
13	.544	1.812	82.010						
14	.478	1.593	83.603						
15	.471	1.569	85.172						
16	.435	1.451	86.623						
17	.419	1.397	88.020						
18	.381	1.270	89.291						
19	.376	1.252	90.543						
20	.347	1.158	91.701						
21	.339	1.130	92.831						
22	.317	1.055	93.886						
23	.284	.948	94.834						
24	.269	.897	95.732						
25	.258	.861	96.592						
26	.237	.790	97.382						
27	.219	.729	98.111						
28	.202	.673	98.784						
29	.191	.636	99.420						
30	.174	.580	100.000						

Extraction Method: Principal Component Analysis.

Scree Plot



Rotated Component Matrix^a

	Component				
	1	2	3	4	5
ANXIETY-COMFORT4			.775		
ANXIETY-COMFORT5			.808		
ANGRY-PLACID1			.779		
DEPRESSION-PLEASURE4		.352	.693		
DEPRESSION-PLEASURE5		.396	.701		
DEPRESSION-PLEASURE6		.400	.699		
BORED-ENTHUSIASTIC4		.563	.411		
BORED-ENTHUSIASTIC5		.614	.388		
BORED-ENTHUSIASTIC6		.585	.373		
TIREDNESS-VIGOUR4		.640			
TIREDNESS-VIGOUR5		.669			
TIREDNESS-VIGOUR6		.724			
ANGRY-PLACID5		.618	.332	.300	
ANGRY-PLACID6		.705			
ANXIETY-COMFORT6		.692	.342		
R_ANXIETY-COMFORT1	.383			.768	
R_ANXIETY-COMFORT2	.443			.733	
R_ANXIETY-COMFORT3	.506			.578	
R_DEPRESSION-PLEASURE1	.639		.325		
R_DEPRESSION-PLEASURE2	.662				
R_DEPRESSION-PLEASURE3	.698				
R_BORED-ENTHUSIASTIC1	.694				
R_BORED-ENTHUSIASTIC2	.728				
R_BORED-ENTHUSIASTIC3	.767				
R_TIREDNESS-VIGOUR1					.792
R_TIREDNESS-VIGOUR2	.448				.720
R_TIREDNESS-VIGOUR3	.435				.549
R_ANGRY-PLACID2	.614				
R_ANGRY-PLACID3	.702				
R_ANGRY-PLACID4	.364	-.495			

Component Transformation Matrix

Component	1	2	3	4	5
1	.556	.539	.595	.190	.102
2	.665	-.525	-.295	.296	.328
3	.227	.528	-.586	-.487	.299
4	-.059	-.336	.461	-.610	.547
5	-.441	.204	-.058	.517	.702

Appendix C6: Factor analysis of life satisfaction

KMO and Bartlett's Test

dimension0	Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	.813
	Bartlett's Test of Sphericity	Approx. Chi-Square
		2391.878
		df
		10
		Sig.
		.000

Communalities

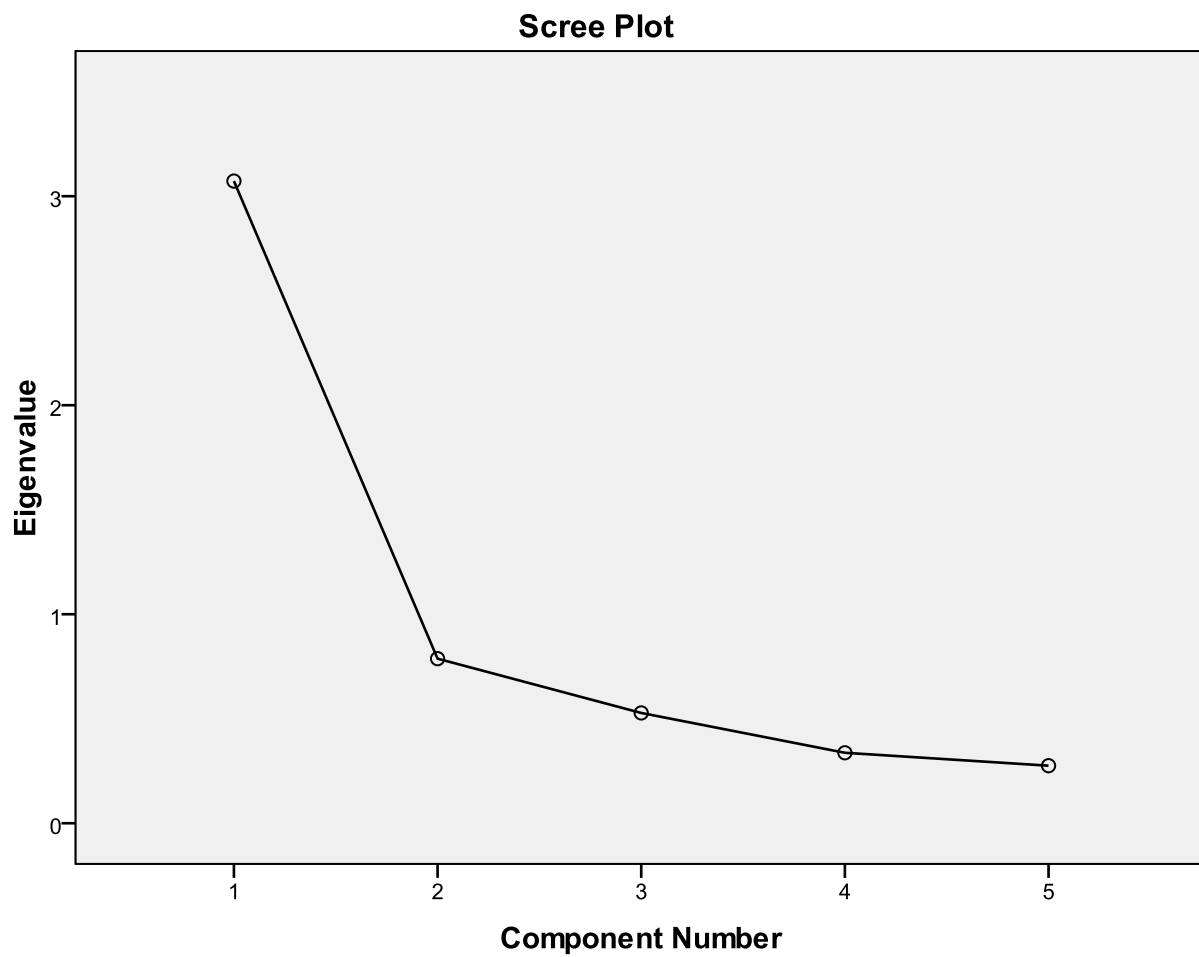
		dimension1	
		Initial	Extraction
dimension0	LIFESATIS1	1.000	.655
	LIFESATIS2	1.000	.710
	LIFESATIS3	1.000	.738
	LIFESATIS4	1.000	.628
	LIFESATIS5	1.000	.340

Extraction Method: Principal Component Analysis.

Total Variance Explained

Component		dimension1					
		Initial Eigenvalues			Extraction Sums of Squared Loadings		
		dimension2			dimension2		
		Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
dimension0	1	3.072	61.448	61.448	3.072	61.448	61.448
	2	.787	15.747	77.196			
	3	.528	10.554	87.750			
	4	.337	6.743	94.493			
	5	.275	5.507	100.000			

Extraction Method: Principal Component Analysis.



Appendix C7: Factor analysis of positive and negative affects

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.882
Bartlett's Test of Sphericity	Approx. Chi-Square	8175.136
	df	190
	Sig.	.000

Communalities

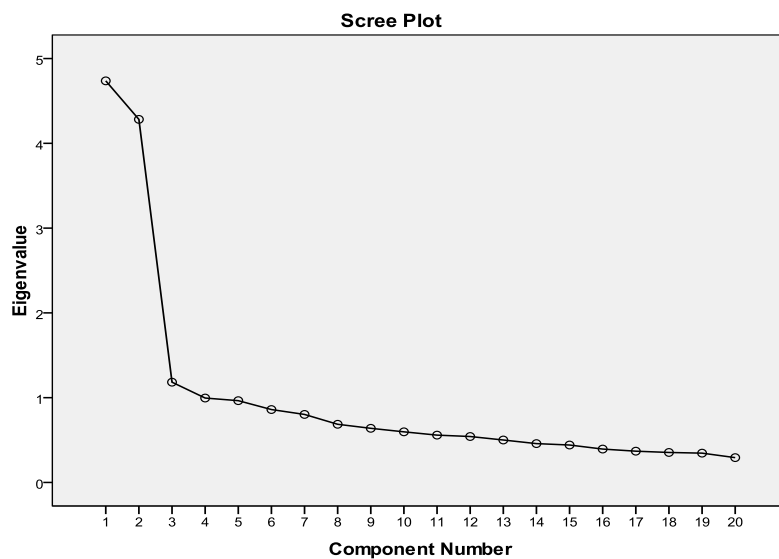
	Initial	Extraction
POSITIVEAFFECT1	1.000	.436
POSITIVEAFFECT2	1.000	.226
POSITIVEAFFECT3	1.000	.406
POSITIVEAFFECT4	1.000	.568
POSITIVEAFFECT5	1.000	.413
POSITIVEAFFECT6	1.000	.413
POSITIVEAFFECT7	1.000	.272
POSITIVEAFFECT8	1.000	.555
POSITIVEAFFECT9	1.000	.559
POSITIVEAFFECT10	1.000	.581
negative affect2	1.000	.371
negative affect4	1.000	.385
negative affect6	1.000	.420
negative affect7	1.000	.537
negative affect8	1.000	.368
negative affect11	1.000	.386
negative affect13	1.000	.318
negative affect15	1.000	.591
negative affect18	1.000	.578
negative affect 20	1.000	.634

Extraction Method: Principal Component Analysis.

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	4.737	23.684	23.684	4.737	23.684	23.684	4.717	23.586	23.586
2	4.282	21.412	45.096	4.282	21.412	45.096	4.302	21.510	45.096
3	1.183	5.913	51.009						
4	.996	4.978	55.987						
5	.965	4.823	60.810						
6	.860	4.299	65.109						
7	.802	4.011	69.120						
8	.686	3.430	72.550						
9	.639	3.193	75.742						
10	.597	2.985	78.727						
11	.558	2.791	81.518						
12	.542	2.709	84.227						
13	.501	2.503	86.730						
14	.458	2.290	89.020						
15	.441	2.207	91.227						
16	.394	1.969	93.196						
17	.369	1.844	95.040						
18	.354	1.769	96.809						
19	.346	1.728	98.536						
20	.293	1.464	100.000						

Extraction Method: Principal Component Analysis.



Rotated Component Matrix^a

		Component dimension1	
		1	2
dimension0	negative affect 20	.796	
	negative affect15	.768	
	negative affect18	.760	
	negative affect7	.732	
	negative affect6	.648	
	negative affect4	.620	
	negative affect11	.618	
	negative affect2	.607	
	negative affect8	.600	
	negative affect13	.546	
	POSITIVEAFFECT10		.760
	POSITIVEAFFECT4		.749
	POSITIVEAFFECT9		.745
	POSITIVEAFFECT8		.744
	POSITIVEAFFECT1		.648
	POSITIVEAFFECT6		.642
	POSITIVEAFFECT5		.641
	POSITIVEAFFECT3		.627
	POSITIVEAFFECT7		.449
	POSITIVEAFFECT2		.423

Component Transformation Matrix

Component		dimension1	
		1	2
dimension0	1	.978	.207
	2	-.207	.978

Appendix C8: Factor analysis of psychological wellbeing

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.885
Bartlett's Test of Sphericity	Approx. Chi-Square	6701.802
	df	91
	Sig.	.000

Communalities

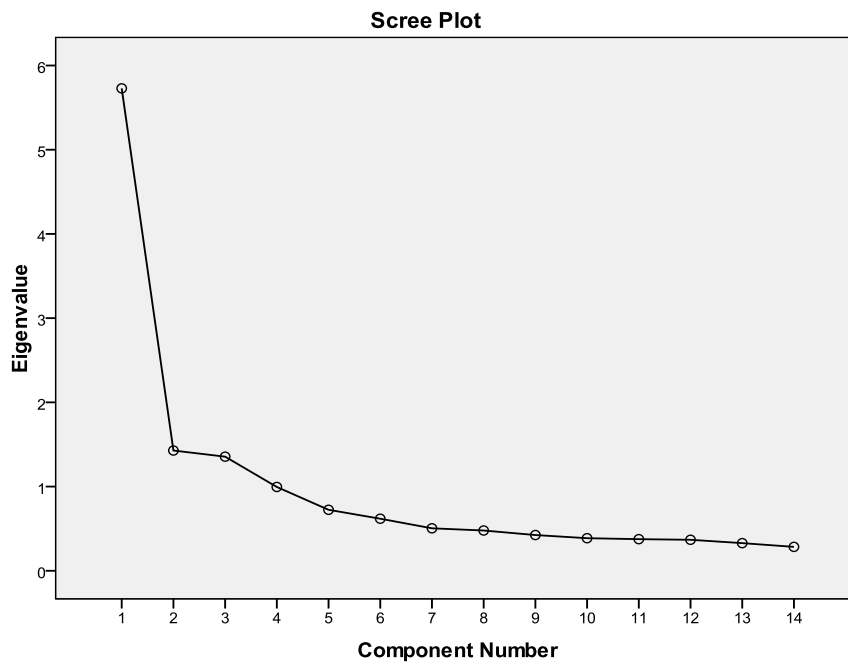
	Initial	Extraction
EMOTIONAL1	1.000	.680
EMOTIONAL2	1.000	.738
EMOTIONAL3	1.000	.697
SOCIAL1	1.000	.585
SOCIAL2	1.000	.743
SOCIAL3	1.000	.683
SOCIAL4	1.000	.439
SOCIAL5	1.000	.485
PSYCHOLOGICAL1	1.000	.527
PSYCHOLOGICAL2	1.000	.558
PSYCHOLOGICAL3	1.000	.613
PSYCHOLOGICAL4	1.000	.580
PSYCHOLOGICAL5	1.000	.577
PSYCHOLOGICAL6	1.000	.607

Extraction Method: Principal Component Analysis.

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	5.728	40.918	40.918	5.728	40.918	40.918	3.480	24.856	24.856
2	1.428	10.200	51.118	1.428	10.200	51.118	2.822	20.154	45.009
3	1.355	9.680	60.798	1.355	9.680	60.798	2.210	15.789	60.798
4	.995	7.109	67.907						
5	.724	5.173	73.080						
6	.618	4.416	77.497						
7	.504	3.603	81.100						
8	.478	3.417	84.517						
9	.425	3.032	87.549						
10	.387	2.764	90.313						
11	.376	2.683	92.996						
12	.368	2.629	95.625						
13	.328	2.346	97.971						
14	.284	2.029	100.000						

Extraction Method: Principal Component Analysis.



Rotated Component Matrix^a

	Component		
	1	2	3
PSYCHOLOGICAL3	.744		
PSYCHOLOGICAL6	.741		
PSYCHOLOGICAL4	.734		
PSYCHOLOGICAL2	.703		
PSYCHOLOGICAL5	.696		
PSYCHOLOGICAL1	.624		
SOCIAL2		.848	
SOCIAL3		.787	
SOCIAL1		.720	
SOCIAL5	.355	.594	
SOCIAL4	.384	.514	
EMOTIONAL2			.811
EMOTIONAL1			.801
EMOTIONAL3			.776

Component Transformation Matrix

Component	1	2	3
1	.694	.569	.441
2	-.515	.820	-.248
3	-.503	-.055	.862

Appendix D: Reliability coefficient of the study variables

a) *Psychological job demands*

Reliability Statistics

Cronbach's Alpha	N of Items
.513	5

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
DEMANDS1	10.0978	2.544	.292	.450
DEMANDS2	10.1929	2.512	.292	.451
R_DEMANDS3	10.6933	2.449	.299	.446
R_DEMANDS4	10.9316	2.612	.287	.454
R_DEMANDS5	10.7316	2.622	.242	.482

b) *Job control*

Reliability Statistics

Cronbach's Alpha	N of Items
.586	9

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
CONTROL1	21.7573	6.188	.454	.514
CONTROL3	21.8640	5.714	.545	.479
CONTROL4	21.8480	5.597	.513	.482
CONTROL5	21.7618	6.013	.459	.507
CONTROL6	21.9111	5.663	.531	.480
CONTROL7	22.2462	6.029	.321	.543
CONTROL9	22.0436	6.419	.310	.548
R_CONTROL2	22.9156	8.058	-.204	.682
R_CONTROL8	22.6356	8.139	-.224	.679

c) Social support

Reliability Statistics

Cronbach's Alpha	N of Items
.838	8

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
SUPPORT1	20.5262	8.289	.581	.818
SUPPORT2	20.5369	8.631	.569	.819
SUPPORT3	20.4747	8.330	.645	.808
SUPPORT4	20.4702	8.304	.662	.806
SUPPORT5	20.3476	8.814	.575	.818
SUPPORT6	20.6613	8.756	.511	.826
SUPPORT7	20.2613	9.248	.468	.830
SUPPORT8	20.2978	8.985	.534	.823

d) Procedural justice

Reliability Statistics

Cronbach's Alpha	N of Items
.874	7

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
PROCEDURAL1	21.3164	14.519	.588	.865
PROCEDURAL2	21.6604	14.600	.484	.880
PROCEDURAL3	21.4000	13.308	.710	.849
PROCEDURAL4	21.2027	13.614	.714	.849
PROCEDURAL5	21.3556	13.354	.737	.845
PROCEDURAL6	21.4044	13.768	.707	.850
PROCEDURAL7	21.4471	14.077	.655	.857

e) Interactional justice

Reliability Statistics

Cronbach's Alpha	N of Items
.843	6

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
INTERACTIONAL1	17.3689	9.772	.655	.811
INTERACTIONAL2	17.7396	10.700	.390	.866
INTERACTIONAL3	17.3876	9.983	.654	.812
INTERACTIONAL4	17.2658	9.766	.721	.800
INTERACTIONAL5	17.3627	9.381	.732	.795
INTERACTIONAL6	17.3689	10.011	.627	.817

f) Distributive justice

Reliability Statistics

Cronbach's Alpha	N of Items
.928	5

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
DISTRIBUTIVE1	11.9609	12.329	.786	.916
DISTRIBUTIVE2	11.9689	12.003	.847	.904
DISTRIBUTIVE3	11.9849	11.853	.878	.898
DISTRIBUTIVE4	11.9973	12.101	.846	.905
DISTRIBUTIVE5	12.2480	12.882	.699	.933

g) Work to family conflict (WFC)

Reliability Statistics

Cronbach's Alpha	N of Items
.922	5

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
WFC1	14.7938	36.981	.727	.918
WFC2	14.6809	34.883	.841	.896
WFC3	14.7156	34.883	.851	.894
WFC4	14.7796	35.133	.842	.896
WFC5	14.3031	35.873	.734	.918

h) Family to work conflict (FWC)

Reliability Statistics

Cronbach's Alpha	N of Items
.919	5

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
FWC1	12.1049	28.832	.716	.916
FWC2	12.3644	28.264	.803	.898
FWC3	12.5013	28.272	.834	.892
FWC4	12.3244	28.244	.790	.901
FWC5	12.4116	28.365	.817	.896

i) *Job satisfaction*

Reliability Statistics

Cronbach's Alpha	N of Items
.840	36

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
JOBSATIS1	128.7413	358.580	.364	.835
JOBSATIS3	128.0809	363.320	.339	.835
JOBSATIS5	128.6427	358.563	.341	.835
JOBSATIS7	127.7182	369.658	.243	.838
JOBSATIS9	128.0596	361.480	.392	.834
JOBSATIS11	128.2756	357.791	.322	.836
JOBSATIS13	128.3804	362.747	.303	.836
JOBSATIS15	128.3600	381.741	-.064	.845
JOBSATIS17	128.0587	374.893	.082	.842
JOBSATIS20	128.5209	364.695	.233	.838
JOBSATIS22	128.5947	360.138	.317	.836
JOBSATIS25	127.4871	372.901	.167	.839
JOBSATIS27	127.4818	370.858	.227	.838
JOBSATIS28	128.8844	349.844	.464	.831
JOBSATIS30	127.9316	362.994	.339	.835
JOBSATIS33	128.9973	354.866	.396	.834
JOBSATIS35	128.0436	363.504	.336	.836
R_JOBSATIS2	130.3644	372.785	.106	.842
R_JOBSATIS4	129.7289	360.902	.324	.836
R_JOBSATIS6	129.7938	363.368	.290	.837
R_JOBSATIS8	129.2596	353.441	.408	.833
R_JOBSATIS10	130.2080	359.683	.306	.836
R_JOBSATIS12	129.0898	352.007	.456	.832
R_JOBSATIS14	129.5351	356.014	.429	.833
R_JOBSATIS16	129.2578	359.450	.332	.836
R_JOBSATIS18	129.4062	351.174	.488	.831
R_JOBSATIS19	129.8916	347.421	.545	.829
R_JOBSATIS21	129.6231	353.070	.434	.832
R_JOBSATIS23	130.0329	357.222	.386	.834
R_JOBSATIS24	129.8738	357.402	.426	.833
R_JOBSATIS26	129.8373	361.277	.325	.836
R_JOBSATIS29	130.1680	362.606	.282	.837
R_JOBSATIS31	129.1529	365.336	.223	.839
R_JOBSATIS32	129.9022	361.149	.343	.835
R_JOBSATIS34	128.6151	357.417	.327	.836
R_JOBSATIS36	129.1164	354.911	.397	.834

j) Job affective wellbeing

Reliability Statistics

Cronbach's Alpha	N of Items
.910	30

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
ANXIETY-COMFORT4	117.4196	560.802	.436	.908
ANXIETY-COMFORT5	117.2436	550.948	.610	.905
ANGRY-PLACID1	117.1787	552.878	.595	.905
DEPRESS-PLEASURE4	116.9316	551.316	.609	.905
DEPRESS-PLEASURE5	117.0658	550.416	.630	.905
DEPRESS-PLEASURE6	116.9849	551.743	.602	.905
BORED-ENTHUSIASTIC4	116.9067	555.092	.570	.906
BORED-ENTHUSIASTIC5	116.7600	562.355	.482	.907
BORED-ENTHUSIASTIC6	116.9493	562.306	.476	.907
TIREDNESS-VIGOUR4	116.9067	565.889	.436	.908
TIREDNESS-VIGOUR5	116.7520	565.094	.428	.908
TIREDNESS-VIGOUR6	117.0124	567.936	.390	.908
ANGRY-PLACID5	117.2062	561.728	.461	.907
ANGRY-PLACID6	116.7369	568.201	.392	.908
ANXIETY-COMFORT6	117.0516	558.738	.520	.906
R_ANXIETY-COMFORT1	116.6018	565.384	.386	.908
R_ANXIETY-COMFORT2	116.8533	560.960	.449	.907
R_ANXIETY-COMFORT3	116.9387	552.483	.548	.906
R_DEPRESS-PLEASURE1	117.2436	545.916	.615	.905
R_DEPRESS-PLEASURE2	116.9396	548.092	.597	.905
R_DEPRESS-PLEASURE3	116.7804	554.910	.549	.906
R_BORED-ENTHUSIASTIC1	117.2604	555.027	.504	.907
R_BORED-ENTHUSIASTIC2	116.6124	556.419	.536	.906
R_BORED-ENTHUSIASTIC3	116.9573	552.110	.557	.906
R_TIREDNESS-VIGOUR1	117.9742	574.440	.251	.911
R_TIREDNESS-VIGOUR2	117.4836	556.330	.440	.908
R_TIREDNESS-VIGOUR3	117.6027	573.204	.260	.911
R_ANGRY-PLACID2	117.0880	558.189	.485	.907
R_ANGRY-PLACID3	117.1698	552.762	.559	.906
R_ANGRY-PLACID4	117.5333	591.722	.036	.914

k) Life satisfaction

Reliability Statistics

Cronbach's Alpha	N of Items
.825	5

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
LIFESATIS1	17.8000	22.093	.658	.780
LIFESATIS2	17.7796	22.539	.696	.772
LIFESATIS3	17.4596	21.540	.719	.763
LIFESATIS4	17.5751	22.072	.662	.779
LIFESATIS5	18.6373	22.187	.439	.858

l) Positive affect

Reliability Statistics

Cronbach's Alpha	N of Items
.843	10

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
PA1	29.3582	30.191	.540	.828
PA2	29.8009	31.398	.353	.845
PA3	29.1333	29.964	.517	.830
PA4	29.1724	29.020	.641	.819
PA5	29.5742	29.229	.539	.828
PA6	29.3084	29.324	.532	.829
PA7	29.8702	30.896	.371	.845
PA8	29.2480	28.929	.643	.819
PA9	29.0178	28.980	.629	.820
PA10	29.1564	28.431	.654	.817

m) Negative affect

Reliability Statistics

Cronbach's Alpha	N of Items
.865	10

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
NA2	19.1156	38.323	.516	.858
NA4	19.5529	38.182	.525	.857
NA6	19.7742	39.068	.554	.854
NA7	19.5484	37.038	.642	.847
NA8	20.1147	39.740	.506	.858
NA11	19.5662	38.096	.534	.856
NA13	19.4729	39.009	.450	.863
NA15	19.6382	36.929	.679	.844
NA18	19.6231	36.203	.672	.844
NA 20	19.7458	36.015	.712	.841

n) Psychological wellbeing

Reliability Statistics

Cronbach's Alpha	N of Items
.848	6

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
PSYCHOLOGICAL1	17.0720	22.885	.589	.832
PSYCHOLOGICAL2	16.8053	23.182	.623	.825
PSYCHOLOGICAL3	16.6258	23.149	.649	.821
PSYCHOLOGICAL4	16.6996	22.200	.631	.824
PSYCHOLOGICAL5	16.8827	22.413	.643	.821
PSYCHOLOGICAL6	16.3991	22.388	.655	.819

Appendix E1: Hierarchical regression_Dependent variable-job satisfaction

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations			Collinearity Statistics	
		B	Std. Error	Beta			Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	3.850	.064		60.198	.000					
	Gender	-.042	.032	-.039	-1.289	.198	-.046	-.038	-.038	.975	1.025
	Age	.020	.023	.028	.867	.386	.026	.026	.026	.823	1.215
	Ethnic	-.176	.044	-.120	-3.979	.000	-.127	-.118	-.118	.967	1.034
	Marital status	-.051	.040	-.041	-1.277	.202	-.039	-.038	-.038	.835	1.197
2	(Constant)	3.739	.052		72.083	.000					
	Gender	-.037	.027	-.035	-1.389	.165	-.046	-.042	-.033	.911	1.098
	Age	.032	.018	.046	1.745	.081	.026	.052	.041	.811	1.232
	Ethnic	-.094	.036	-.064	-2.608	.009	-.127	-.078	-.062	.940	1.064
	Marital status	-.033	.033	-.026	-1.005	.315	-.039	-.030	-.024	.818	1.223
	Zscore(demands)	-.052	.014	-.097	-3.790	.000	-.255	-.113	-.090	.863	1.159
	Zscore(procedural)	.038	.015	.069	2.426	.015	.337	.073	.058	.691	1.447
	Zscore(interactional)	.072	.018	.132	4.051	.000	.433	.121	.096	.527	1.896
	Zscore(distributive)	.115	.015	.213	7.488	.000	.428	.219	.178	.699	1.430
	Zscore(WFC)	-.090	.016	-.166	-5.498	.000	-.371	-.163	-.130	.620	1.614
	Zscore(FWC)	-.056	.016	-.104	-3.600	.000	-.267	-.107	-.085	.674	1.484
	Zscore(control)	-.008	.014	-.015	-.583	.560	.113	-.017	-.014	.858	1.166
	Zscore(support)	.099	.017	.183	5.940	.000	.426	.175	.141	.596	1.677
3	(Constant)	3.737	.052		72.018	.000					
	Gender	-.028	.027	-.026	-1.058	.290	-.046	-.032	-.025	.896	1.116
	Age	.032	.018	.046	1.747	.081	.026	.053	.041	.802	1.246
	Ethnic	-.090	.036	-.061	-2.533	.011	-.127	-.076	-.059	.930	1.075
	Marital status	-.029	.032	-.023	-.898	.369	-.039	-.027	-.021	.803	1.246
	Zscore(demands)	-.049	.014	-.090	-3.527	.000	-.255	-.106	-.082	.847	1.180
	Zscore(procedural)	.039	.016	.072	2.489	.013	.337	.075	.058	.662	1.510
	Zscore(interactional)	.069	.018	.127	3.844	.000	.433	.115	.090	.502	1.994
	Zscore(distributive)	.114	.015	.210	7.414	.000	.428	.218	.173	.684	1.462

	Zscore(WFC)	-.092	.016	-.170	-5.644	.000	-.371	-.168	-.132	.605	1.653
	Zscore(FWC)	-.060	.016	-.111	-3.847	.000	-.267	-.115	-.090	.651	1.536
	Zscore(control)	-.008	.014	-.015	-.593	.553	.113	-.018	-.014	.807	1.239
	Zscore(support)	.096	.017	.177	5.689	.000	.426	.169	.133	.567	1.763
	JDxJC	.001	.013	.003	.101	.920	.042	.003	.002	.697	1.434
	JDxSS	.057	.013	.125	4.476	.000	.137	.134	.105	.707	1.415
	JCxSS	.020	.015	.046	1.369	.171	.043	.041	.032	.489	2.043
	PJxJC	-.007	.014	-.014	-.486	.627	.024	-.015	-.011	.655	1.527
	PJxSS	.019	.014	.043	1.386	.166	.009	.042	.032	.565	1.769
	IJxJC	-.033	.017	-.068	-2.007	.045	-.010	-.060	-.047	.476	2.103
	IJx SS	-.020	.014	-.049	-1.390	.165	-.085	-.042	-.033	.438	2.281
	DJxJC	.025	.015	.049	1.683	.093	.033	.051	.039	.646	1.547
	DJxSS	-.004	.014	-.008	-.254	.800	-.033	-.008	-.006	.608	1.644
	WFCxJC	-.012	.018	-.022	-.636	.525	-.009	-.019	-.015	.477	2.099
	WFCxSS	-.027	.018	-.053	-1.503	.133	-.024	-.045	-.035	.442	2.260
	FWCxJC	.013	.017	.023	.729	.466	-.046	.022	.017	.538	1.858
	FWCxSS	-.022	.016	-.046	-1.375	.170	-.077	-.041	-.032	.497	2.011
4	(Constant)	3.739	.052		72.124	.000					
	Gender	-.022	.027	-.020	-.819	.413	-.046	-.025	-.019	.883	1.133
	Age	.030	.018	.044	1.667	.096	.026	.050	.039	.799	1.251
	Ethnic	-.092	.036	-.062	-2.571	.010	-.127	-.078	-.060	.924	1.082
	Marital status	-.026	.032	-.021	-.801	.423	-.039	-.024	-.019	.798	1.253
	Zscore(demands)	-.049	.015	-.091	-3.378	.001	-.255	-.102	-.079	.751	1.331
	Zscore(procedural)	.035	.016	.065	2.219	.027	.337	.067	.052	.640	1.562
	Zscore(interactional)	.064	.018	.118	3.516	.000	.433	.106	.082	.483	2.072
	Zscore(distributive)	.115	.015	.213	7.453	.000	.428	.220	.174	.668	1.496
	Zscore(WFC)	-.096	.017	-.178	-5.682	.000	-.371	-.169	-.133	.557	1.795
	Zscore(FWC)	-.057	.016	-.105	-3.564	.000	-.267	-.107	-.083	.628	1.593
	Zscore(control)	-.021	.016	-.039	-1.356	.175	.113	-.041	-.032	.656	1.524
	Zscore(support)	.095	.017	.175	5.570	.000	.426	.166	.130	.554	1.804
	JDxJC	.003	.013	.007	.232	.817	.042	.007	.005	.650	1.539
	JDxSS	.054	.013	.118	4.198	.000	.137	.126	.098	.686	1.457
	JCxSS	.026	.016	.058	1.636	.102	.043	.049	.038	.434	2.304
	PJxJC	-.002	.015	-.004	-.138	.890	.024	-.004	-.003	.570	1.755
	PJxSS	.012	.014	.028	.871	.384	.009	.026	.020	.543	1.840

IJxJC	-.038	.018	-.077	-2.153	.032	-.010	-.065	-.050	.426	2.348
IJXSS	-.027	.015	-.065	-1.813	.070	-.085	-.055	-.042	.427	2.342
DJxJC	.023	.016	.044	1.468	.142	.033	.044	.034	.613	1.630
DJxSS	-.003	.014	-.006	-.191	.848	-.033	-.006	-.004	.597	1.675
WFCxJC	-.015	.019	-.028	-.828	.408	-.009	-.025	-.019	.471	2.123
WFCxSS	-.020	.018	-.040	-1.116	.265	-.024	-.034	-.026	.425	2.352
FWCxJC	.011	.018	.020	.593	.553	-.046	.018	.014	.503	1.990
FWCxSS	-.015	.017	-.032	-.907	.364	-.077	-.027	-.021	.443	2.255
JDxJCxSS	.002	.010	.006	.201	.841	-.051	.006	.005	.589	1.699
PJxJCxSS	.016	.010	.054	1.546	.122	.139	.047	.036	.453	2.206
IJxJCxSS	.000	.012	-.001	-.031	.975	.174	-.001	-.001	.292	3.429
DJxJCxSS	.008	.012	.025	.693	.488	.172	.021	.016	.426	2.350
WFCxJCxSS	.015	.015	.043	1.052	.293	-.113	.032	.025	.331	3.022
FWCxJCxSS	-.024	.013	-.073	-1.832	.067	-.079	-.055	-.043	.347	2.884

Model Summary^c

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.139 ^a	.019	.016	.53731	.019	5.507	4	1120	.000
2	.611 ^b	.373	.367	.43100	.354	78.580	8	1112	.000
3	.631 ^c	.399	.385	.42472	.025	3.549	13	1099	.000
4	.636 ^d	.404	.387	.42403	.005	1.592	6	1093	.146

Appendix E2: Hierarchical regression_Dependent variable-job affective wellbeing

Coefficients ^a											
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations			Collinearity Statistics	
		B	Std. Error	Beta			Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	4.080	.097		42.075	.000					
	Gender	-.014	.049	-.009	-.286	.775	-.006	-.009	-.009	.975	1.025
	Age	-.012	.035	-.012	-.356	.722	.008	-.011	-.011	.823	1.215
	Ethnic	-.080	.067	-.036	-1.190	.234	-.034	-.036	-.036	.967	1.034
	Marital status	.075	.061	.040	1.235	.217	.034	.037	.037	.835	1.197
2	(Constant)	3.969	.092		42.974	.000					
	Gender	-.035	.048	-.021	-.720	.472	-.006	-.022	-.020	.911	1.098
	Age	.011	.033	.011	.340	.734	.008	.010	.010	.811	1.232
	Ethnic	.000	.064	.000	-.004	.997	-.034	.000	.000	.940	1.064
	Marital status	.083	.058	.045	1.432	.152	.034	.043	.040	.818	1.223
	Zscore(demands)	-.111	.025	-.137	-4.517	.000	-.205	-.134	-.127	.863	1.159
	Zscore(procedural)	.047	.028	.058	1.712	.087	.166	.051	.048	.691	1.447
	Zscore(interactional)	.050	.032	.061	1.588	.113	.180	.048	.045	.527	1.896
	Zscore(distributive)	-.005	.027	-.006	-.180	.857	.137	-.005	-.005	.699	1.430
	Zscore(WFC)	-.180	.029	-.221	-6.181	.000	-.281	-.182	-.174	.620	1.614
	Zscore(FWC)	.007	.028	.008	.240	.810	-.147	.007	.007	.674	1.484
	Zscore(control)	.043	.025	.053	1.751	.080	.089	.052	.049	.858	1.166
	Zscore(support)	.030	.030	.037	1.017	.309	.179	.030	.029	.596	1.677
3	(Constant)	3.967	.094		42.336	.000					
	Gender	-.025	.048	-.016	-.523	.601	-.006	-.016	-.015	.896	1.116
	Age	.016	.033	.015	.475	.635	.008	.014	.013	.802	1.246
	Ethnic	.008	.064	.003	.119	.905	-.034	.004	.003	.930	1.075
	Marital status	.081	.058	.043	1.385	.166	.034	.042	.039	.803	1.246
	Zscore(demands)	-.106	.025	-.131	-4.281	.000	-.205	-.128	-.120	.847	1.180
	Zscore(procedural)	.058	.028	.071	2.052	.040	.166	.062	.058	.662	1.510
	Zscore(interactional)	.043	.032	.052	1.319	.187	.180	.040	.037	.502	1.994
	Zscore(distributive)	-.007	.028	-.009	-.265	.791	.137	-.008	-.007	.684	1.462
	Zscore(WFC)	-.182	.029	-.224	-6.195	.000	-.281	-.184	-.174	.605	1.653
	Zscore(FWC)	.005	.028	.007	.193	.847	-.147	.006	.005	.651	1.536
	Zscore(control)	.042	.025	.052	1.668	.096	.089	.050	.047	.807	1.239

	Zscore(support)	.034	.030	.041	1.111	.267	.179	.034	.031	.567	1.763
	JDxJC	-.001	.024	-.001	-.043	.966	.015	-.001	-.001	.697	1.434
	JDxSS	.012	.023	.017	.521	.602	.045	.016	.015	.707	1.415
	JCxSS	-.007	.027	-.010	-.251	.802	-.033	-.008	-.007	.489	2.043
	PJxJC	-.025	.025	-.035	-1.012	.312	-.032	-.031	-.028	.655	1.527
	PJxSS	.030	.025	.045	1.192	.233	-.015	.036	.033	.565	1.769
	IJxJC	-.037	.030	-.051	-1.245	.213	-.050	-.038	-.035	.476	2.103
	IJxSS	-.006	.026	-.009	-.214	.831	-.064	-.006	-.006	.438	2.281
	DJxJC	.059	.027	.076	2.167	.030	.001	.065	.061	.646	1.547
	DJxSS	-.055	.026	-.076	-2.117	.035	-.067	-.064	-.059	.608	1.644
	WFCxJC	-.028	.033	-.035	-.851	.395	-.007	-.026	-.024	.477	2.099
	WFCxSS	.008	.032	.010	.238	.812	.026	.007	.007	.442	2.260
	FWCxJC	.007	.031	.009	.225	.822	-.024	.007	.006	.538	1.858
	FWCxSS	-.009	.029	-.012	-.298	.766	-.018	-.009	-.008	.497	2.011
4	(Constant)	3.969	.094		42.374	.000					
	Gender	-.033	.049	-.020	-.683	.494	-.006	-.021	-.019	.883	1.133
	Age	.016	.033	.015	.480	.631	.008	.015	.013	.799	1.251
	Ethnic	.006	.065	.003	.095	.924	-.034	.003	.003	.924	1.082
	Marital status	.084	.059	.045	1.432	.152	.034	.043	.040	.798	1.253
	Zscore(demands)	-.114	.026	-.140	-4.333	.000	-.205	-.130	-.122	.751	1.331
	Zscore(procedural)	.064	.029	.079	2.239	.025	.166	.068	.063	.640	1.562
	Zscore(interactional)	.034	.033	.042	1.042	.298	.180	.032	.029	.483	2.072
	Zscore(distributive)	-.011	.028	-.014	-.402	.688	.137	-.012	-.011	.668	1.496
	Zscore(WFC)	-.188	.031	-.231	-6.131	.000	-.281	-.182	-.172	.557	1.795
	Zscore(FWC)	.012	.029	.015	.420	.674	-.147	.013	.012	.628	1.593
	Zscore(control)	.044	.028	.054	1.548	.122	.089	.047	.043	.656	1.524
	Zscore(SUPPORT)	.032	.031	.039	1.032	.302	.179	.031	.029	.554	1.804
	JDxJC	.012	.024	.018	.510	.610	.015	.015	.014	.650	1.539
	JDxSS	.009	.023	.013	.375	.708	.045	.011	.011	.686	1.457
	JCxSS	-.001	.029	-.002	-.049	.961	-.033	-.001	-.001	.434	2.304
	PJxJC	-.046	.026	-.065	-1.737	.083	-.032	-.052	-.049	.570	1.755
	PJxSS	.028	.025	.042	1.095	.274	-.015	.033	.031	.543	1.840
	IJxJC	-.032	.032	-.043	-1.007	.314	-.050	-.030	-.028	.426	2.348
	IJxSS	-.008	.026	-.013	-.293	.769	-.064	-.009	-.008	.427	2.342
	DJxJC	.072	.028	.092	2.566	.010	.001	.077	.072	.613	1.630

DJxSS	-.053	.026	-.074	-2.031	.042	-.067	-.061	-.057	.597	1.675
WFCxJC	-.030	.033	-.037	-.895	.371	-.007	-.027	-.025	.471	2.123
WFCXSS	.016	.032	.021	.482	.630	.026	.015	.014	.425	2.352
FWCxCJC	.002	.032	.002	.062	.951	-.024	.002	.002	.503	1.990
FWCxCSS	-.002	.030	-.003	-.060	.952	-.018	-.002	-.002	.443	2.255
JDxJCxCSS	.024	.018	.049	1.340	.181	-.030	.040	.038	.589	1.699
PJxJCxCSS	-.037	.019	-.083	-1.989	.047	.023	-.060	-.056	.453	2.206
IJxJCxCSS	.029	.022	.069	1.322	.186	.086	.040	.037	.292	3.429
DJxJCxCSS	.008	.022	.016	.368	.713	.080	.011	.010	.426	2.350
WFCxJCxCSS	.014	.027	.025	.516	.606	-.059	.016	.014	.331	3.022
FWCxCJCxCSS	-.031	.024	-.062	-1.291	.197	-.036	-.039	-.036	.347	2.884

Model Summary^e

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.050 ^a	.003	-.001	.81476	.003	.710	4	1120	.585
2	.349 ^b	.122	.112	.76732	.119	18.848	8	1112	.000
3	.364 ^c	.132	.113	.76706	.011	1.057	13	1099	.394
4	.373 ^d	.139	.115	.76626	.007	1.385	6	1093	.217

Appendix E3: Hierarchical regression_Dependent variable-life satisfaction

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations			Collinearity Statistics	
		B	Std. Error	Beta			Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	3.996	.135		29.531	.000					
	Gender	-.189	.069	-.082	-2.747	.006	-.059	-.082	-.081	.975	1.025
	Age	.156	.048	.105	3.234	.001	.121	.096	.095	.823	1.215
	Ethnic	.100	.094	.032	1.066	.287	.015	.032	.031	.967	1.034
	Marital status	.201	.085	.076	2.370	.018	.106	.071	.070	.835	1.197
2	(Constant)	3.912	.133		29.512	.000					
	Gender	-.159	.069	-.069	-2.305	.021	-.059	-.069	-.066	.911	1.098
	Age	.152	.047	.103	3.238	.001	.121	.097	.092	.811	1.232
	Ethnic	.191	.092	.061	2.074	.038	.015	.062	.059	.940	1.064
	Marital status	.203	.083	.077	2.437	.015	.106	.073	.070	.818	1.223
	Zscore(demands)	-.010	.035	-.009	-.288	.774	-.070	-.009	-.008	.863	1.159
	Zscore(procedural)	.061	.040	.053	1.544	.123	.163	.046	.044	.691	1.447
	Zscore(interactional)	.012	.045	.010	.255	.799	.146	.008	.007	.527	1.896
	Zscore(distributive)	.203	.039	.177	5.179	.000	.229	.153	.148	.699	1.430
	Zscore(WFC)	-.056	.042	-.049	-1.342	.180	-.115	-.040	-.038	.620	1.614
	Zscore(FWC)	-.060	.040	-.052	-1.498	.135	-.099	-.045	-.043	.674	1.484
	Zscore(control)	-.005	.035	-.005	-.149	.882	.054	-.004	-.004	.858	1.166
	Zscore(support)	.044	.043	.039	1.045	.296	.135	.031	.030	.596	1.677
3	(Constant)	3.927	.134		29.212	.000					
	Gender	-.151	.069	-.066	-2.179	.030	-.059	-.066	-.062	.896	1.116
	Age	.153	.047	.103	3.235	.001	.121	.097	.092	.802	1.246
	Ethnic	.184	.092	.059	1.997	.046	.015	.060	.057	.930	1.075
	Marital status	.197	.084	.075	2.347	.019	.106	.071	.067	.803	1.246
	Zscore(demands)	-.008	.036	-.007	-.230	.818	-.070	-.007	-.007	.847	1.180
	Zscore(procedural)	.073	.040	.064	1.812	.070	.163	.055	.052	.662	1.510
	Zscore(interactional)	.009	.046	.008	.195	.845	.146	.006	.006	.502	1.994
	Zscore(distributive)	.201	.040	.175	5.071	.000	.229	.151	.145	.684	1.462
	Zscore(WFC)	-.049	.042	-.043	-1.170	.242	-.115	-.035	-.033	.605	1.653
	Zscore(FWC)	-.060	.041	-.052	-1.483	.138	-.099	-.045	-.042	.651	1.536
	Zscore(control)	-.012	.037	-.010	-.320	.749	.054	-.010	-.009	.807	1.239

	Zscore(support)	.041	.044	.035	.931	.352	.135	.028	.027	.567	1.763
	JDxJC	.001	.034	.001	.034	.973	.024	.001	.001	.697	1.434
	JDxSS	.036	.033	.036	1.072	.284	.029	.032	.031	.707	1.415
	JCxSS	.007	.039	.008	.187	.852	-.014	.006	.005	.489	2.043
	PJxJC	-.047	.035	-.047	-1.331	.184	-.033	-.040	-.038	.655	1.527
	PJxSS	.060	.036	.064	1.688	.092	.025	.051	.048	.565	1.769
	IJxJC	-.035	.043	-.034	-.820	.412	-.037	-.025	-.023	.476	2.103
	IJxSS	-.052	.037	-.060	-1.390	.165	-.041	-.042	-.040	.438	2.281
	DJxJC	-.009	.039	-.008	-.236	.813	-.035	-.007	-.007	.646	1.547
	DJxSS	.023	.037	.022	.610	.542	.012	.018	.017	.608	1.644
	WFCxJC	-.032	.048	-.028	-.669	.504	-.045	-.020	-.019	.477	2.099
	WFCxSS	-.057	.046	-.053	-1.237	.216	-.034	-.037	-.035	.442	2.260
	FWCxJC	-.042	.045	-.037	-.944	.345	-.058	-.028	-.027	.538	1.858
	FWCxSS	.022	.041	.022	.545	.586	-.019	.016	.016	.497	2.011
4	(Constant)	3.922	.134		29.188	.000					
	Gender	-.138	.070	-.060	-1.981	.048	-.059	-.060	-.056	.883	1.133
	Age	.147	.047	.099	3.115	.002	.121	.094	.089	.799	1.251
	Ethnic	.195	.093	.063	2.111	.035	.015	.064	.060	.924	1.082
	Marital status	.208	.084	.079	2.474	.013	.106	.075	.071	.798	1.253
	Zscore(demands)	-.020	.038	-.018	-.533	.594	-.070	-.016	-.015	.751	1.331
	Zscore(procedural)	.062	.041	.054	1.506	.132	.163	.046	.043	.640	1.562
	Zscore(interactional)	-.014	.047	-.012	-.290	.772	.146	-.009	-.008	.483	2.072
	Zscore(distributive)	.212	.040	.184	5.288	.000	.229	.158	.151	.668	1.496
	Zscore(WFC)	-.059	.044	-.051	-1.343	.179	-.115	-.041	-.038	.557	1.795
	Zscore(FWC)	-.062	.041	-.054	-1.502	.133	-.099	-.045	-.043	.628	1.593
	Zscore(control)	-.042	.040	-.037	-1.040	.299	.054	-.031	-.030	.656	1.524
	Zscore(support)	.036	.044	.031	.820	.413	.135	.025	.023	.554	1.804
	JDxJC	.004	.035	.004	.106	.916	.024	.003	.003	.650	1.539
	JDxSS	.038	.034	.039	1.138	.255	.029	.034	.032	.686	1.457
	JCxSS	-.004	.041	-.004	-.097	.923	-.014	-.003	-.003	.434	2.304
	PJxJC	-.040	.038	-.040	-1.047	.295	-.033	-.032	-.030	.570	1.755
	PJxSS	.046	.036	.049	1.264	.207	.025	.038	.036	.543	1.840
	IJxJC	-.013	.045	-.012	-.282	.778	-.037	-.009	-.008	.426	2.348
	IJxSS	-.060	.038	-.069	-1.576	.115	-.041	-.048	-.045	.427	2.342
	DJxJC	-.015	.040	-.013	-.367	.714	-.035	-.011	-.010	.613	1.630

DJxSS	.020	.037	.020	.535	.593	.012	.016	.015	.597	1.675
WFCxJC	-.041	.048	-.035	-.845	.398	-.045	-.026	-.024	.471	2.123
WFCxJS	-.058	.047	-.055	-1.255	.210	-.034	-.038	-.036	.425	2.352
FWCxJC	-.028	.046	-.024	-.596	.551	-.058	-.018	-.017	.503	1.990
FWCxSS	.041	.044	.040	.944	.345	-.019	.029	.027	.443	2.255
JDxJCxSS	.018	.025	.027	.727	.467	.003	.022	.021	.589	1.699
PJxJCxSS	.028	.027	.045	1.056	.291	.093	.032	.030	.453	2.206
IJxJCxSS	.051	.031	.087	1.640	.101	.108	.050	.047	.292	3.429
DJxJCxSS	-.019	.031	-.027	-.619	.536	.082	-.019	-.018	.426	2.350
WFCxJCxSS	.022	.038	.029	.580	.562	-.022	.018	.017	.331	3.022
FWCxJCxSS	-.003	.035	-.004	-.084	.933	-.012	-.003	-.002	.347	2.884

Model Summary^c

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.162 ^a	.026	.023	1.13685	.026	7.534	4	1120	.000
2	.304 ^b	.093	.083	1.10130	.066	10.185	8	1112	.000
3	.324 ^c	.105	.085	1.10033	.012	1.151	13	1099	.311
4	.334 ^d	.112	.086	1.09915	.007	1.392	6	1093	.215

Appendix E4: Hierarchical regression_Dependent variable-positive affect

Coefficients ^a											
		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations			Collinearity Statistics	
		B	Std. Error	Beta			Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	3.142	.071		44.389	.000					
	Gender	.160	.036	.133	4.440	.000	.131	.132	.131	.975	1.025
	Age	.019	.025	.025	.755	.450	.015	.023	.022	.823	1.215
	Ethnic	.064	.049	.039	1.301	.194	.040	.039	.038	.967	1.034
	Marital status	-.064	.044	-.047	-1.448	.148	-.018	-.043	-.043	.835	1.197
2	(Constant)	3.153	.066		47.459	.000					
	Gender	.126	.035	.105	3.660	.000	.131	.109	.100	.911	1.098
	Age	.018	.024	.023	.750	.453	.015	.022	.021	.811	1.232
	Ethnic	.093	.046	.057	2.018	.044	.040	.060	.055	.940	1.064
	Marital status	-.088	.042	-.064	-2.103	.036	-.018	-.063	-.058	.818	1.223
	Zscore(demands)	.011	.018	.019	.641	.521	-.010	.019	.018	.863	1.159
	Zscore(procedural)	.056	.020	.094	2.849	.004	.206	.085	.078	.691	1.447
	Zscore(interactional)	.042	.023	.070	1.856	.064	.242	.056	.051	.527	1.896
	Zscore(distributive)	.027	.020	.045	1.375	.169	.163	.041	.038	.699	1.430
	Zscore(WFC)	-.002	.021	-.003	-.074	.941	-.122	-.002	-.002	.620	1.614
	Zscore(FWC)	-.063	.020	-.106	-3.155	.002	-.145	-.094	-.087	.674	1.484
	Zscore(control)	.137	.018	.228	7.697	.000	.305	.225	.211	.858	1.166
	Zscore(support)	.039	.021	.065	1.829	.068	.238	.055	.050	.596	1.677
3	(Constant)	3.111	.067		46.666	.000					
	Gender	.128	.034	.107	3.730	.000	.131	.112	.101	.896	1.116
	Age	.022	.023	.029	.949	.343	.015	.029	.026	.802	1.246
	Ethnic	.086	.046	.053	1.869	.062	.040	.056	.051	.930	1.075
	Marital status	-.076	.042	-.055	-1.820	.069	-.018	-.055	-.049	.803	1.246
	Zscore(demands)	.012	.018	.020	.676	.499	-.010	.020	.018	.847	1.180
	Zscore(procedural)	.061	.020	.101	3.036	.002	.206	.091	.082	.662	1.510
	Zscore(interactional)	.049	.023	.071	2.121	.066	.242	.064	.058	.502	1.994

	Zscore(distributive)	.015	.020	.025	.760	.447	.163	.023	.021	.684	1.462
	Zscore(WFC)	-.008	.021	-.013	-.379	.705	-.122	-.011	-.010	.605	1.653
	Zscore(FWC)	-.056	.020	-.094	-2.790	.005	-.145	-.084	-.076	.651	1.536
	Zscore(control)	.135	.018	.226	7.469	.000	.305	.220	.203	.807	1.239
	Zscore(support)	.048	.022	.060	2.228	.102	.238	.067	.060	.567	1.763
	JDxJC	-.013	.017	-.024	-.747	.455	.002	-.023	-.020	.697	1.434
	JDxSS	.017	.016	.033	1.009	.313	-.017	.030	.027	.707	1.415
	JCxSS	-.025	.019	-.050	-1.294	.196	.015	-.039	-.035	.489	2.043
	PJxJC	-.018	.018	-.034	-1.010	.313	.014	-.030	-.027	.655	1.527
	PJxSS	.034	.018	.070	1.949	.052	.101	.059	.053	.565	1.769
	IJxJC	.006	.021	.012	.302	.763	.036	.009	.008	.476	2.103
	IJxSS	.013	.019	.029	.700	.484	.081	.021	.019	.438	2.281
	DJxJC	.051	.019	.088	2.620	.009	.059	.079	.071	.646	1.547
	DJxSS	.002	.018	.004	.118	.906	.084	.004	.003	.608	1.644
	WFCxJC	-.006	.024	-.010	-.249	.803	-.038	-.008	-.007	.477	2.099
	WFCxSS	-.052	.023	-.094	-2.296	.022	-.119	-.069	-.062	.442	2.260
	FWCxJC	-.006	.022	-.010	-.268	.789	-.026	-.008	-.007	.538	1.858
	FWCxSS	.001	.020	.001	.025	.980	-.109	.001	.001	.497	2.011
4	(Constant)	3.110	.067		46.600	.000					
	Gender	.135	.035	.112	3.881	.000	.131	.117	.105	.883	1.133
	Age	.021	.024	.027	.895	.371	.015	.027	.024	.799	1.251
	Ethnic	.083	.046	.051	1.797	.073	.040	.054	.049	.924	1.082
	Marital status	-.069	.042	-.051	-1.664	.096	-.018	-.050	-.045	.798	1.253
	Zscore(demands)	.021	.019	.035	1.127	.260	-.010	.034	.031	.751	1.331
	Zscore(procedural)	.062	.020	.103	3.026	.003	.206	.091	.082	.640	1.562
	Zscore(interactional)	.044	.023	.073	1.870	.062	.242	.056	.051	.483	2.072
	Zscore(distributive)	.018	.020	.029	.887	.375	.163	.027	.024	.668	1.496
	Zscore(WFC)	-.017	.022	-.029	-.795	.427	-.122	-.024	-.022	.557	1.795
	Zscore(FWC)	-.051	.021	-.085	-2.468	.014	-.145	-.074	-.067	.628	1.593
	Zscore(control)	.121	.020	.202	6.019	.000	.305	.179	.163	.656	1.524
	Zscore(support)	.050	.022	.083	2.264	.024	.238	.068	.061	.554	1.804
	JDxJC	-.017	.017	-.033	-.982	.326	.002	-.030	-.027	.650	1.539
	JDxSS	.017	.017	.032	.989	.323	-.017	.030	.027	.686	1.457
	JCxSS	-.016	.020	-.033	-.803	.422	.015	-.024	-.022	.434	2.304
	PJxJC	-.016	.019	-.031	-.857	.392	.014	-.026	-.023	.570	1.755

PJxSS	.030	.018	.060	1.638	.102	.101	.049	.044	.543	1.840
IJxJC	.003	.023	.005	.129	.897	.036	.004	.004	.426	2.348
IJxSS	.008	.019	.017	.399	.690	.081	.012	.011	.427	2.342
DJxJC	.047	.020	.082	2.360	.018	.059	.071	.064	.613	1.630
DJxSS	.005	.019	.010	.294	.769	.084	.009	.008	.597	1.675
WFCxJC	-.006	.024	-.009	-.239	.811	-.038	-.007	-.006	.471	2.123
WFCxSS	-.050	.023	-.090	-2.159	.031	-.119	-.065	-.059	.425	2.352
FWCxJC	-.009	.023	-.015	-.381	.703	-.026	-.012	-.010	.503	1.990
FWCxSS	.005	.022	.010	.249	.803	-.109	.008	.007	.443	2.255
JDxJCxSS	-.019	.013	-.052	-1.478	.140	-.073	-.045	-.040	.589	1.699
PJxJCxSS	.004	.013	.011	.279	.780	.185	.008	.008	.453	2.206
IJxJCxSS	.012	.015	.038	.763	.445	.217	.023	.021	.292	3.429
DJxJCxSS	-.008	.016	-.022	-.522	.602	.154	-.016	-.014	.426	2.350
WFCxJCxSS	.025	.019	.061	1.302	.193	-.124	.039	.035	.331	3.022
FWCxJCxSS	-.027	.017	-.073	-1.575	.115	-.146	-.048	-.043	.347	2.884

Model Summary^e

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.142 ^a	.020	.017	.59466	.020	5.754	4	1120	.000
2	.402 ^b	.162	.153	.55200	.142	23.474	8	1112	.000
3	.436 ^c	.190	.172	.54570	.029	2.986	13	1099	.000
4	.441 ^d	.194	.171	.54587	.004	.886	6	1093	.505

Appendix E5: Hierarchical regression_Dependent variable-negative affect

Coefficients ^a											
		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations			Collinearity Statistics	
		B	Std. Error	Beta			Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	2.392	.081		29.675	.000					
	Gender	-.026	.041	-.019	-.628	.530	-.031	-.019	-.019	.975	1.025
	Age	-.056	.029	-.064	-1.959	.050	-.073	-.058	-.058	.823	1.215
	Ethnic	-.057	.056	-.031	-1.023	.307	-.023	-.031	-.030	.967	1.034
	Marital status	-.048	.051	-.031	-.943	.346	-.059	-.028	-.028	.835	1.197
2	(Constant)	2.448	.079		30.885	.000					
	Gender	-.024	.041	-.018	-.583	.560	-.031	-.017	-.017	.911	1.098
	Age	-.067	.028	-.077	-2.394	.017	-.073	-.072	-.069	.811	1.232
	Ethnic	-.093	.055	-.051	-1.700	.089	-.023	-.051	-.049	.940	1.064
	Marital status	-.052	.050	-.034	-1.052	.293	-.059	-.032	-.030	.818	1.223
	Zscore(demands)	.035	.021	.051	1.645	.100	.081	.049	.048	.863	1.159
	Zscore(procedural)	-.003	.024	-.004	-.119	.905	-.056	-.004	-.003	.691	1.447
	Zscore(interactional)	-.043	.027	-.063	-1.592	.112	-.091	-.048	-.046	.527	1.896
	Zscore(distributive)	.015	.023	.023	.652	.515	-.035	.020	.019	.699	1.430
	Zscore(WFC)	.078	.025	.115	3.123	.002	.199	.093	.090	.620	1.614
	Zscore(FWC)	.092	.024	.136	3.863	.000	.207	.115	.112	.674	1.484
	Zscore(control)	.004	.021	.006	.182	.855	-.021	.005	.005	.858	1.166
	Zscore(support)	.011	.025	.017	.451	.652	-.066	.014	.013	.596	1.677
3	(Constant)	2.432	.080		30.329	.000					
	Gender	-.028	.041	-.021	-.684	.494	-.031	-.021	-.020	.896	1.116
	Age	-.068	.028	-.078	-2.422	.016	-.073	-.073	-.070	.802	1.246
	Ethnic	-.107	.055	-.058	-1.934	.053	-.023	-.058	-.056	.930	1.075
	Marital status	-.035	.050	-.023	-.705	.481	-.059	-.021	-.020	.803	1.246
	Zscore(demands)	.035	.021	.051	1.631	.103	.081	.049	.047	.847	1.180
	Zscore(procedural)	-.009	.024	-.013	-.366	.715	-.056	-.011	-.011	.662	1.510
	Zscore(interactional)	-.040	.028	-.058	-1.431	.153	-.091	-.043	-.041	.502	1.994
	Zscore(distributive)	.015	.024	.022	.620	.535	-.035	.019	.018	.684	1.462

	Zscore(WFC)	.080	.025	.117	3.160	.002	.199	.095	.091	.605	1.653
	Zscore(FWC)	.094	.024	.139	3.883	.000	.207	.116	.112	.651	1.536
	Zscore(control)	.008	.022	.012	.377	.707	-.021	.011	.011	.807	1.239
	Zscore(support)	.012	.026	.018	.470	.639	-.066	.014	.014	.567	1.763
	JDxJC	.008	.020	.014	.393	.694	-.015	.012	.011	.697	1.434
	JDxSS	-.018	.020	-.032	-.919	.358	-.053	-.028	-.027	.707	1.415
	JCxSS	.018	.023	.031	.761	.447	.007	.023	.022	.489	2.043
	PJxJC	-.029	.021	-.049	-1.376	.169	-.033	-.041	-.040	.655	1.527
	PJxSS	.003	.021	.006	.150	.881	.028	.005	.004	.565	1.769
	IJxJC	-.030	.026	-.049	-1.163	.245	-.021	-.035	-.034	.476	2.103
	IJxSS	-.002	.022	-.005	-.109	.913	.052	-.003	-.003	.438	2.281
	DJxJC	.040	.023	.062	1.725	.085	.049	.052	.050	.646	1.547
	DJxSS	.052	.022	.087	2.340	.019	.088	.070	.068	.608	1.644
	WFCxJC	.035	.029	.052	1.244	.214	.048	.038	.036	.477	2.099
	WFCxSS	.009	.027	.014	.313	.754	-.020	.009	.009	.442	2.260
	FWCxJC	-.018	.027	-.026	-.670	.503	.025	-.020	-.019	.538	1.858
	FWCxSS	.001	.025	.002	.047	.963	-.013	.001	.001	.497	2.011
4	(Constant)	2.433	.080		30.302	.000					
	Gender	-.031	.042	-.023	-.736	.462	-.031	-.022	-.021	.883	1.133
	Age	-.067	.028	-.076	-2.357	.019	-.073	-.071	-.068	.799	1.251
	Ethnic	-.108	.055	-.059	-1.951	.051	-.023	-.059	-.056	.924	1.082
	Marital status	-.041	.050	-.026	-.818	.413	-.059	-.025	-.024	.798	1.253
	Zscore(demands)	.037	.023	.055	1.657	.098	.081	.050	.048	.751	1.331
	Zscore(procedural)	-.008	.024	-.012	-.328	.743	-.056	-.010	-.009	.640	1.562
	Zscore(interactional)	-.030	.028	-.044	-1.055	.292	-.091	-.032	-.030	.483	2.072
	Zscore(distributive)	.012	.024	.017	.482	.630	-.035	.015	.014	.668	1.496
	Zscore(WFC)	.087	.026	.129	3.325	.001	.199	.100	.096	.557	1.795
	Zscore(FWC)	.091	.025	.134	3.682	.000	.207	.111	.106	.628	1.593
	Zscore(control)	.017	.024	.025	.701	.483	-.021	.021	.020	.656	1.524
	Zscore(support)	.012	.026	.018	.468	.640	-.066	.014	.014	.554	1.804
	JDxJC	.005	.021	.009	.248	.805	-.015	.007	.007	.650	1.539
	JDxSS	-.019	.020	-.034	-.963	.336	-.053	-.029	-.028	.686	1.457
	JCxSS	.019	.024	.034	.772	.440	.007	.023	.022	.434	2.304
	PJxJC	-.025	.023	-.042	-1.104	.270	-.033	-.033	-.032	.570	1.755
	PJxSS	.007	.022	.013	.340	.734	.028	.010	.010	.543	1.840

IJxJC	-.037	.027	-.061	-1.371	.171	-.021	-.041	-.040	.426	2.348
IJxSS	.001	.023	.002	.035	.972	.052	.001	.001	.427	2.342
DJxJC	.039	.024	.060	1.629	.104	.049	.049	.047	.613	1.630
DJxSS	.050	.022	.084	2.259	.024	.088	.068	.065	.597	1.675
WFCxJC	.037	.029	.055	1.296	.195	.048	.039	.037	.471	2.123
WFCxSS	.007	.028	.011	.256	.798	-.020	.008	.007	.425	2.352
FWCxJC	-.020	.028	-.029	-.703	.482	.025	-.021	-.020	.503	1.990
FWCxSS	-.006	.026	-.010	-.223	.824	-.013	-.007	-.006	.443	2.255
JDxJCxSS	-.006	.015	-.015	-.388	.698	.002	-.012	-.011	.589	1.699
PJxJCxSS	.005	.016	.013	.302	.763	.014	.009	.009	.453	2.206
IJxJCxSS	-.027	.018	-.079	-1.470	.142	-.027	-.044	-.042	.292	3.429
DJxJCxSS	.011	.019	.026	.578	.564	-.025	.017	.017	.426	2.350
WFCxJCxSS	-.020	.023	-.043	-.861	.389	.004	-.026	-.025	.331	3.022
FWCxJCxSS	.016	.021	.039	.788	.431	.020	.024	.023	.347	2.884

Model Summary^e

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.088 ^a	.008	.004	.67715	.008	2.210	4	1120	.066
2	.262 ^b	.069	.058	.65848	.061	9.054	8	1112	.000
3	.292 ^c	.085	.065	.65629	.017	1.570	13	1099	.087
4	.298 ^d	.089	.063	.65693	.003	.648	6	1093	.692

Appendix E6: Hierarchical regression_Dependent variable-psychological wellbeing

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations			Collinearity Statistics	
		B	Std. Error	Beta			Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	3.116	.112		27.934	.000					
	Gender	.005	.057	.003	.092	.926	.016	.003	.003	.975	1.025
	Age	.028	.040	.023	.693	.488	.043	.021	.021	.823	1.215
	Ethnic	.085	.077	.033	1.099	.272	.032	.033	.033	.967	1.034
	Marital status	.138	.070	.064	1.969	.049	.074	.059	.059	.835	1.197
2	(Constant)	3.138	.107		29.201	.000					
	Gender	-.020	.056	-.011	-.365	.715	.016	-.011	-.010	.911	1.098
	Age	.026	.038	.021	.682	.495	.043	.020	.019	.811	1.232
	Ethnic	.119	.075	.047	1.603	.109	.032	.048	.045	.940	1.064
	Marital status	.091	.067	.042	1.344	.179	.074	.040	.038	.818	1.223
	Zscore(demands)	.024	.029	.026	.850	.395	.006	.025	.024	.863	1.159
	Zscore(procedural)	.073	.032	.078	2.279	.023	.149	.068	.065	.691	1.447
	Zscore(interactional)	-.046	.037	-.049	-1.242	.214	.106	-.037	-.035	.527	1.896
	Zscore(distributive)	.047	.032	.050	1.478	.140	.107	.044	.042	.699	1.430
	Zscore(WFC)	-.006	.034	-.007	-.189	.850	-.127	-.006	-.005	.620	1.614
	Zscore(FWC)	-.167	.032	-.177	-5.136	.000	-.202	-.152	-.146	.674	1.484
	Zscore(control)	.173	.029	.184	6.020	.000	.228	.178	.171	.858	1.166
	Zscore(support)	.058	.034	.062	1.676	.094	.151	.050	.048	.596	1.677
3	(Constant)	3.146	.109		28.925	.000					
	Gender	-.013	.056	-.007	-.225	.822	.016	-.007	-.006	.896	1.116
	Age	.032	.038	.026	.833	.405	.043	.025	.024	.802	1.246
	Ethnic	.109	.075	.043	1.464	.143	.032	.044	.041	.930	1.075
	Marital status	.076	.068	.036	1.126	.260	.074	.034	.032	.803	1.246
	Zscore(demands)	.025	.029	.027	.873	.383	.006	.026	.025	.847	1.180
	Zscore(procedural)	.081	.033	.087	2.491	.013	.149	.075	.070	.662	1.510
	Zscore(interactional)	-.064	.037	-.068	-1.699	.090	.106	-.051	-.048	.502	1.994
Zscore(distributive)	.043	.032	.046	1.341	.180	.107	.040	.038	.684	1.462	

	Zscore(WFC)	-.002	.034	-.002	-.047	.962	-.127	-.001	-.001	.605	1.653
	Zscore(FWC)	-.173	.033	-.184	-5.249	.000	-.202	-.156	-.148	.651	1.536
	Zscore(control)	.168	.030	.179	5.671	.000	.228	.169	.160	.807	1.239
	Zscore(support)	.065	.035	.069	1.837	.066	.151	.055	.052	.567	1.763
	JDxJC	-.005	.027	-.006	-.185	.853	.010	-.006	-.005	.697	1.434
	JDxSS	-.017	.027	-.021	-.633	.527	-.031	-.019	-.018	.707	1.415
	JCxSS	-.011	.031	-.014	-.339	.735	-.026	-.010	-.010	.489	2.043
	PJxJC	-.003	.029	-.003	-.098	.922	-.016	-.003	-.003	.655	1.527
	PJxSS	.055	.029	.071	1.899	.058	.047	.057	.054	.565	1.769
	IJxJC	-.019	.035	-.022	-.542	.588	-.038	-.016	-.015	.476	2.103
	IJxSS	-.084	.030	-.118	-2.760	.006	-.021	-.083	-.078	.438	2.281
	DJxJC	-.002	.032	-.002	-.055	.956	-.036	-.002	-.002	.646	1.547
	DJxSS	.032	.030	.039	1.065	.287	.039	.032	.030	.608	1.644
	WFCxJC	.000	.039	.000	.011	.991	-.031	.000	.000	.477	2.099
	WFCxSS	-.043	.037	-.049	-1.164	.245	-.071	-.035	-.033	.442	2.260
	FWCxJC	-.015	.036	-.016	-.410	.682	-.031	-.012	-.012	.538	1.858
	FWCxSS	-.037	.033	-.045	-1.111	.267	-.074	-.034	-.031	.497	2.011
4	(Constant)	3.148	.109		28.930	.000					
	Gender	-.006	.057	-.003	-.101	.919	.016	-.003	-.003	.883	1.133
	Age	.029	.038	.024	.757	.449	.043	.023	.021	.799	1.251
	Ethnic	.112	.075	.044	1.489	.137	.032	.045	.042	.924	1.082
	Marital status	.081	.068	.038	1.193	.233	.074	.036	.034	.798	1.253
	Zscore(demands)	.012	.031	.013	.406	.685	.006	.012	.011	.751	1.331
	Zscore(procedural)	.073	.033	.078	2.205	.028	.149	.067	.062	.640	1.562
	Zscore(interactional)	-.076	.038	-.081	-1.990	.047	.106	-.060	-.056	.483	2.072
	Zscore(distributive)	.047	.032	.050	1.447	.148	.107	.044	.041	.668	1.496
	Zscore(WFC)	-.008	.036	-.008	-.215	.830	-.127	-.007	-.006	.557	1.795
	Zscore(FWC)	-.170	.034	-.181	-5.065	.000	-.202	-.151	-.143	.628	1.593
	Zscore(control)	.154	.033	.164	4.696	.000	.228	.141	.133	.656	1.524
	Zscore(support)	.062	.036	.066	1.747	.081	.151	.053	.049	.554	1.804
	JDxJC	.004	.028	.005	.141	.888	.010	.004	.004	.650	1.539
	JDxSS	-.019	.027	-.024	-.703	.482	-.031	-.021	-.020	.686	1.457
	JCxSS	-.014	.033	-.018	-.409	.683	-.026	-.012	-.012	.434	2.304
	PJxJC	.000	.031	.000	.007	.995	-.016	.000	.000	.570	1.755
	PJxSS	.045	.029	.059	1.542	.123	.047	.047	.044	.543	1.840

IJxJC	-.015	.037	-.017	-.397	.691	-.038	-.012	-.011	.426	2.348
IJxSS	-.091	.031	-.129	-2.971	.003	-.021	-.089	-.084	.427	2.342
DJxJC	-.002	.033	-.002	-.055	.956	-.036	-.002	-.002	.613	1.630
DJxSS	.031	.030	.038	1.037	.300	.039	.031	.029	.597	1.675
WFCxJC	-.007	.039	-.007	-.171	.864	-.031	-.005	-.005	.471	2.123
WFCxSS	-.034	.038	-.040	-.913	.362	-.071	-.028	-.026	.425	2.352
FWCxJC	-.013	.038	-.014	-.347	.729	-.031	-.010	-.010	.503	1.990
FWCxSS	-.026	.035	-.031	-.735	.463	-.074	-.022	-.021	.443	2.255
JDxJCxSS	.026	.020	.047	1.272	.204	.000	.038	.036	.589	1.699
PJxJCxSS	.019	.022	.037	.876	.381	.136	.026	.025	.453	2.206
IJxJCxSS	.014	.025	.030	.572	.568	.160	.017	.016	.292	3.429
DJxJCxSS	.008	.025	.013	.303	.762	.120	.009	.009	.426	2.350
WFCxJCxSS	.022	.031	.036	.725	.468	-.074	.022	.021	.331	3.022
FWCxJCxSS	-.026	.028	-.045	-.930	.352	-.088	-.028	-.026	.347	2.884

Model Summary^e

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.083 ^a	.007	.003	.93728	.007	1.924	4	1120	.104
2	.325 ^b	.105	.096	.89276	.099	15.313	8	1112	.000
3	.348 ^c	.121	.101	.89021	.015	1.490	13	1099	.114
4	.355 ^d	.126	.101	.89005	.005	1.068	6	1093	.380