Factors affecting the job satisfaction levels of shift workers in the aviation sector: An empirical study in New Zealand

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Abstract

People spend much of their lives at work and job satisfaction significantly contributes to their well-being. It leads to higher employee commitment, productivity and loyalty, which in turn contributes to superior organisational performance. Shift work may impact on employee job satisfaction, especially when organisations split working hours due to 24-hours service demands. Numerous studies have measured job satisfaction in relation to personal characteristics, organisational and environmental factors in various contexts. However, there are conflicting views at the individual level so this study will focus on individual employee characteristics. Furthermore, little is known about job satisfaction in the aviation sector despite its significance to the economy and employment of many shift workers. This research thus focuses on New Zealand aviation shift workers' job satisfaction. An online questionnaire explored the impact of personal demographic variables (e.g. gender, marital status) and risk factors (e.g. stress, isolation) on the shift workers' job satisfaction. Survey data were analysed using statistical techniques. Thematic analysis of qualitative survey material complemented the quantitative findings. The study revealed that job satisfaction varies according to the departments in which respondents work. Moreover, there is a low to moderate negative relationship between job satisfaction and stress, difficulty falling asleep and isolation; and moderate to substantially negative relationship between job satisfaction and health issues, fatigue and family conflict. Health issues, fatigue and family conflict were the three main predictors of job satisfaction. The findings inform implications for theory, practice and policy, particularly in Human Resource Management, are discussed with recommendations for further research.

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Chapter 1 – Introduction

1.1 Introduction to the Subject

Over recent decades, job satisfaction has been extensively researched in industrial and organisational psychology, organisational behaviour, management and Human Resource Management (HRM) (Cooper & Locke, 2000; Zaman & Rahman, 2013). Since 1974, more than 2,000 studies have been published on job satisfaction across the world (Dantzker & Surrette, 1997). However, the concern with job satisfaction in research will not lessen, as long as individuals continue to work.

According to research, job satisfaction is a significant contributor to an individual's well-being, as he or she spends a substantial amount of his or her adult life in the workplace. Understanding job satisfaction helps organisations to recognise the factors that drive employee satisfaction, which in turn improve organisational turnover, productivity and employee loyalty. Job satisfaction enables an organisation to deliver high performance and enhance organisational outcomes. It has major impact on organisational success as high levels of job satisfaction can lead to an increase in productivity, efficiency and enthusiasm, as well as an inspiration for workers to be more diligent and honest (Shahidul-Islam, 2016; Spector, 2012) and achieve a higher desire to remain with the organisation for longer (Sarker, Crossman & Chinmeteepituck, 2003). However, job satisfaction has an inverse relationship with withdrawal behaviours (such as absence and turnover) and health (e.g. Castle, Engberg, Anderson & Men, 2007; Davood & Tayebeh, 2012; Mahdi, Zin, Nor, Sakat & Naim, 2012). Therefore, understanding job satisfaction is important for improving employee well-being at work (and beyond), productivity and organisational performance.

1.1.1 Shift work

Shift work is not a modern phenomenon; it has been in existence since the 1800s. Due to increase in economic demand for around-the-clock service and introduction of artificial lighting, modern societies now heavily depend on shift work to meet the needs of society (Strazdins, Korda, Lim, Broom & D'Souza, 2004). Shift work is most simply referred to as splitting working hours into two or more rotations to cover the time needed to perform a duty, thus requiring two or more teams of workers (Srivastava, 2010). During the days of ancient Rome, deliveries of goods were restricted to the night hours to reduce congestion on the roads, likewise, bakers worked during early hours of the day to prepare fresh products. During this period, shift work was mainly conducted by male trades and craft workers, who were able to change trades if they were not able to work shifts. Shift work gained prevalence during the industrial revolution, where it was impractical for companies to close down industrial processes and operated 24 hours a day in order to maintain low operating costs (Monk & Folkard, 1992). Modern lifestyle requires an instant service from various providers within the health, transport, security and communication sectors (Pati, Chandrawanshi & Reinberg, 2001).

The number of employees working shifts has increased throughout the years due to operational requirements and technological advancements. In the service sector, the majority of businesses require workers around the clock, for example, in health care, security, police, military, firefighting and airports. Therefore, employees need to be on shift-work patterns, where their regular working hours are commonly outside standard hours (0700 to 1900 Monday to Friday) (Folkard, Lombardi & Tucker, 2005; Grosswald, 2004; Knutsson, 2004). Each sector has a unique working environment (e.g. the nature of the work differs considerably between shift workers in the health sector and those in the

food or utility sectors). However, all are under the umbrella of shift work and special consideration is needed in order to deliver the best to their customers.

1.1.2 Employment and shift work in New Zealand

New Zealand's workforce consists of over two million individuals, 83.6% are employees, from which 90% are permanent and the other 10% are temporary employees (casual workers and fixed-term and temporary agency). Men and women are almost equivalent in the category, 50.7% and 49.3% respectively (Welch, 2013).

According to the Survey of Working Life in New Zealand (2013), 29.59% of employees specified that they did not usually work all hours during a standard time (0700 to 1900, Monday to Friday) (Male=57.40%, Female=42.60%), and a further 4.24% specified that they have no usual working time (Male=52.80%, Female=47.20%). Of those who did not usually work during standard times, 51.39% had a spouse or partner which were employed, 36.9% had no spouse or partner and 11.71% had a partner or spouse who were not employed. Furthermore, 66% had no dependent children, whereas 14.34% had a dependent child, 13% had 2 dependent children, 4.48% had three dependent children and 1.69% had 4 or more dependent children (Welch, 2013). In some, the survey identifies the considerable diversity of shift workers and their circumstances in New Zealand.

Working largely during daytime was the most common work pattern for employed individuals in New Zealand (87.62%). Of those employed, 3.43% primarily worked during the evening (1900–2300), 1.31% during night (2300–0500), and 6.74% worked varying shifts. Furthermore, nearly nine out of 10 employed individuals were either 'satisfied' or 'very satisfied' with their main occupation, in comparison to one in 20 who were either 'dissatisfied' or 'very dissatisfied'. Furthermore, eight in 10 employees were

either ‘satisfied’ or ‘very satisfied’ with their work-life balance, in comparison to one in 10 who were either ‘dissatisfied’ or ‘very dissatisfied’. In addition, 18.48% of employees working mostly evening, night or changing shifts, reported that they experienced difficulties such as sleeping and health (55.38%), family and home responsibility (29.65%), social, leisure or personal (25.87%), and other types of difficulties including education and commuting (14.97%). 55.36% of males found work to be stressful at times, in comparison to 51.45% for females. In addition, physical problems and pain due to work was another common factor among 58.62% of males and 49.87% of females. 51.51% of females often found themselves too tired to enjoy life outside work, in comparison to males where 56.16% were rarely tired to enjoy life outside work (Welch, 2013). This identifies the significant impact of shift work on employee well-being in New Zealand, and further empirical research is required based on sectors where shift work levels are significant.

1.1.3 Industries

The five largest industries in New Zealand are retail trade, accommodation and food services (14.33% of all employees), manufacturing, electricity, gas, water, and waste services (11.44%), health care and social assistance (11.27%), education and training (8.46%), professional, scientific, technical, administrative and support services (8.26%). The highest proportion of evening and night schedules is reported in the following divisions: retail, trade, accommodation and food services (32.5%), health care and social assistance (29.5%), manufacturing and electricity, gas, water and waste services (25.5%), professional, scientific, technical, administrative and support services (22.3%), transport, postal and warehousing (15.6%), and education and training (13.3). Table 1 further

identifies the industry and the percentage of employees which work evening and night (Welch, 2013).

As of 2013, the transport, postal and warehousing industry is not considered one of the largest industries in the country (in relation to number of employees). However, it is one of the industries that highly requires and follows shift schedules. The majority of researchers acknowledge the high percentage of shift work in most of the listed industries (Table 1) and have conducted studies within these industries. However, very few have examined the transport, postal and warehousing industry. Therefore, this research will be focusing on the aviation sector, which is a significant part of the transport, postal and warehousing industry.

Table 1

Industries working Evening and Night Shifts (Welch, 2013)

Industry	Evening (%)	Night (%)	Total (%)
Retail trade, accommodation and food services	18.2	14.3	32.5
Professional, scientific, technical, administrative and support services	12.4	9.9	22.3
Health care and social assistance	12.2	17.3	29.5
Education and training	9.3	4.0	13.3
Manufacturing and electricity, gas, water and waste services	8.9	16.6	25.5
Transport, postal and warehousing	**5.4**	**10.2**	**15.6**

1.1.4 Transport, postal and warehousing industry

According to the Australian and New Zealand Standard Industrial Classification (ANZSIC) (2017), the transport, postal and warehouse division includes units involved in passenger and freight transportation by road, rail, water or air. They also provide

support services such as airport operations and customer agency services (ANZSIC, 2017). In this division, 84.84% of employees are either 'satisfied' or 'very satisfied', 10.60% are neither 'satisfied' nor 'dissatisfied' and 4.56% are 'dissatisfied' or 'very dissatisfied' (Welch, 2013).

The air transport industry is relatively a new industry, only having emerged in the early twentieth century, it has established itself as a major contributor to global Gross Domestic Product (GDP) (Air Transport Action Group, n.d.). It has generated five million direct jobs worldwide, with 4.3 million people working for airlines and airports globally. The aviation sector is is one of the greatest contributors to the advancement of New Zealand society and to the region's economic growth (New Zealand Government, 2012). It is a key player in driving growth in travel, tourism and trade sectors in New Zealand (Air Transport Action Group, 2005).

The case organisation examined in this study belongs to the aviation sector, it provides air passenger and cargo services domestically and internationally (Case Organisation, 2015). Due to the services provided and the nature of the sector, workers are required 24 hours a day, 365 days a year. These workers work various hours of the day to meet operational requirements and industrial demands of the case organisation. They work in various roles and departments with a mixture of shift patterns and shift durations. These employees are the front-line staff and the face of the organisation to their customers. Their level of job satisfaction is a significant factor to the success of the organisation.

Several researchers (AbuAlRub, 2004; Knutsson, 2004; Pidsrksi, Brook et al., 2006) have studied the impact of shift work on job satisfaction and other characteristics such as health, absenteeism, turnover, psychological well-being, familial accord/discord and job performance. Burch, Tom et al. (2009) identified that shift work leads to a decrease in job

satisfaction. Shift workers are found to experience issues, such as, job stress, work family conflict, fatigue, and social isolation. These pose a direct and/or indirect influence on job satisfaction (Spector, 2012).

1.2 Purpose of the Study

Majority of the front-line staff at the aviation sector are shift workers. Their satisfaction with their job is an important concern for any organisation; it is the main component of the work environment and the organisational climate (Conley, Bacharach & Bauer, 1989). After an extensive review of the literature and conflicting views regarding the personal demographic variables and risk factors which influence employee job satisfaction, this study will aim to explore the impact of personal demographic variables (i.e. personal characteristics and personal work related characteristics): department, position, employment type, gender, marital status, age, educational level, work experience and number of dependents; so as to deepen understanding of their impact on job satisfaction among shift workers. In addition, it will look into certain risk factors: health issues, difficulty falling asleep, family conflict, fatigue, stress and isolation; related to shift work which eventually impact employees' job satisfaction in the aviation sector in New Zealand. In relation to shift workers in the aviation sector, this research will address the following research questions:

1. Does job satisfaction vary according to personal demographic variables?;
2. What is the nature and extent of the relationship between job satisfaction and the risk factors?; and
3. Can job satisfaction be predicted by the risk factors?

1.3 Research Approach

Secondary and primary quantitative and qualitative data were collected in this study. According to Bryman and Bell (2015) primary data are information that is collected by the researcher via questionnaires or interviews. Secondary data refer to information gathered from journal articles, books and reports. In this study, primary data were collected using an online survey. Secondary data, such as organisational website material, documents and personal correspondence, were mainly used to provide a research context and help corroborate the primary data.

Several studies have used a quantitative methodology with a global approach to measure general or overall job satisfaction (Buitendach & Rothmann, 2009). Building on this quantitative tradition, this research will follow an identical approach (see section 2.3). In addition, several qualitative elements (open-ended questions) were added to the survey in order to gain an understanding of underlying reasons and opinions of participants on certain issues. A single organisation was examined using a cross-sectional questionnaire as the main research tool. It was distributed and collected through Qualtrics (an online platform).

1.4 Study Contribution

Job satisfaction among shift workers has been given considerable attention in various contexts and countries. Although the transport, postal and warehousing industry (to which the aviation sector belongs), in New Zealand has one of the highest proportions of shift workers. A lack of research in this sector underscores the need for further investigation in order to provide findings which can inform the improvement of the working environment and employee well-being, as well as insure smooth progress with organisational strategic goals. Therefore, this research will contribute to the existing

literature by filling the gap and extending the existing practitioner understanding of job satisfaction in relation to shift workers in the aviation sector in New Zealand. The aviation sector is a significant business sector in New Zealand, and this study's focus on a case based at a major airport which is considered a significant asset and contributor to the country's economy (see section 1.1.4). The findings will also be of value in guiding policy makers in designing appropriate strategies to motivate the case organisation employees to improve the quality of their services to clients. Furthermore, findings could have a significant theoretical contribution and be of utility to other organisations in the aviation sector and beyond.

1.5 Outline of the Study

This chapter introduced the need for and significance of the study, its scope and key contributions. Gaps identified in the extant literature surfaced key research questions for this study and a research methodology was developed. Chapter 2 presents a synopsis of the job satisfaction theories, followed by a review of the relevant literature on job satisfaction assessment, job satisfaction among shift workers, factors affecting job satisfaction (personal demographics and risk factors) in order to provide academic evidence of the current knowledge, and to demonstrate the rationale for the focus of this research. It concludes with a statement of the intended contribution that this study will provide to the extent literature. Chapter 3 describes the quantitative research methodology with few qualitative elements that is applied in this research. The research design method and data collection processes are explained and justified. The data analysis and results of the study are presented in Chapter 4. In Chapter 5, the outcomes of the key research questions are compared with the literature reviewed. In addition, implications for theory, practice and policy along with study contributions, limitations and future research are discussed. The chapter concludes with a summary and final remarks.

Chapter 2 – Literature Review

2.1 Introduction

This chapter provides an overview and review of the extant literature on the main topics of the research, job satisfaction and shift work. Definitions of job satisfaction, followed by theories of job satisfaction, are discussed in Section 2.2. An assessment of job satisfaction is reviewed in Section 2.3, followed by a review of job satisfaction among shift workers and reasons for working shifts in Section 2.4. Factors affecting job satisfaction are explored in Section 2.5, including personal demographic variables and risk factors. Section 2.6 concludes with clear research questions that derive from gaps in scholarly work. Section 2.7 provides a summary of the chapter.

2.2 Job Satisfaction

2.2.1 Definition

Researchers and practitioners have given job satisfaction considerable attention, particularly in terms of its importance and its impact on organisations and their employees. High levels of job satisfaction have been associated positively with job performance (Samad, 2005) and organisational commitment (Bytyqi, Reshani & Hasani, 2010), as well as, negatively with withdrawal behaviours (Cooper & Locke, 2000) and health (Faragher, Cass & Cooper, 2005). It is well established that job satisfaction leads to organisational success, however emphasis needs to be placed on understanding the factors which drive job satisfaction among individuals and the risk factors associated with conducting shift work.

Due to the extensive literature available on job satisfaction, the meaning of the term has been conveyed differently by researchers. In organisational research, the most common perspective of job satisfaction is the positive or pleasant emotional state resulting from an

individual's appreciation of his or her own job or experience (Locke, 1976; also Zaman & Rahman, 2013). While others view it as how individuals feel towards their job, such as Spector (1997), defined job satisfaction as the "extent to which people like their jobs; job dissatisfaction is the extent to which they dislike them" (p. 210) or expresses employees' feelings about their work (Arches, 1991). According to Hoppock's (1935), often cited definition, job satisfaction is a "combination of psychological, physiological and environmental circumstances that causes a person to say: I'm satisfied with my job" (p. 47). In addition, Samad (2005) defined job satisfaction as "a contribution of cognitive and affective reactions to the differential perceptions of what an employee wants to receive compared with what he or she actually receives" (p. 79). It is evident that there are several inconsistencies in defining job satisfaction, this is common among literature which is widely studied and various determinants and scope on job satisfaction, such as personal issues and/or job characteristics, influences each researcher's definition.

Given the aforementioned views on job satisfaction, we view job satisfaction as a set of favourable or unfavourable feelings which employees have towards their jobs within an organisation. It is widely accepted that job satisfaction reflects the way an employee feels about his or her employment. All employees experience a degree of satisfaction or dissatisfaction within their job at some point in their life. Some tend to be more satisfied with certain aspects of their job compared to others. An individual with a high level of job satisfaction tends to have a positive attitude, in contrast to one with a lower level of job satisfaction who tends to have a less positive attitude (Mohanty, 2016) which would in turn impact on the working environment and co-worker relationships.

2.2.2 Job satisfaction theories

There are numerous theories that attempt to explain job satisfaction. Three main theories will be discussed in this section: Adams' Equity theory (1965); Herzberg's two-factor theory (1966); and Hackman and Oldham's Job Characteristic Model (1979).

Equity theory

Adams (1965) demonstrated that individuals compare their inputs (efforts) and outputs (rewards) at their job with their friends, colleagues and/or those working in a similar sector. When an individual determines that they are receiving less output than others or there is an inequity, they are reportedly becoming dissatisfied, and react by putting less effort into their work, taking long coffee breaks and reducing their level of input (Gruneberg, 1979). Inputs comprise the quantity and quality of an individual's contributions to his or her work. They include: effort, time, commitment, tolerance, personal sacrifice and enthusiasm. On the other hand, outputs are the rewards gained in return for their input, this includes: job security, remuneration, benefits, recognition, reputation, responsibilities, sense of achievement, commendation and acknowledgements (Dugguh & Dennis, 2014). Remuneration or salary is the main focus in this theory as employees want to feel that their efforts are appreciated, so they expect to be paid well. If an employee feels or perceives that he or she is getting underpaid, this can lead to potential job dissatisfaction and ultimately results in lack of motivation and low performance from the employee.

Herzberg's two-factor theory

Herzberg's two-factor theory (Motivator Hygiene Theory) is one of the earliest theories of job satisfaction (Gruneberg, 1979). Herzberg distinguishes between two factors that

drive job satisfaction. Firstly, there are motivators (work itself, responsibilities and achievement) which lead to job satisfaction if they are available in the working condition. However, its absence does not necessarily lead to job dissatisfaction. Secondly, there are hygiene factors (e.g. company policies, working conditions and pay) which can potentially lead to job dissatisfaction when they are insufficient, but do not lead to job satisfaction when adequate (Gruneberg, 1979). According to Gruneberg (1979), a number of studies have reached conclusions that support the aforementioned theory. However, other researchers have proven that this theory is method-bound, meaning that if another method of data collection were used, the results frequently fail to confirm the theory. Therefore, the theory has gained little empirical support from other researchers (Spector, 1997).

Job characteristics model

Changing job and task characteristics can make a job more interesting, enjoyable, and meaningful which in turn enhances level of job satisfaction for an employee (Spector, 2012). Hackman and Oldham's (1979) job characteristic theory demonstrates how job characteristics affect an individual. According to their model, if the job provides the five core characteristics (skill variety, task identity, task significance, autonomy and job feedback), then it is likely to be more satisfying and motivating than when it does not provide these characteristics (Cooper & Locke, 2000). Furthermore, the model includes 'Growth Need Strength' as a personality variable, which influences the effect of the core characteristics on the outcome (work motivation, job performance, job satisfaction and turnover). This theory suggests that employees who are eager to have a challenging and interesting job will have higher level of job satisfaction and motivation in complex jobs (Hackman & Oldham, 1979). This theory has been supported by several researchers, gained significant empirical support, and has been a foundation of several job

characteristics instruments such as the Job Diagnostic Survey (1976). However, it has been criticised by a few researchers as it does not identify the direction of the relationship or causality between job characteristics and job satisfaction (Spector, 1997).

2.3 Job Satisfaction Assessment

Several researchers have measured the job satisfaction of employees using quantitative methods (Buitendach & Rothmann, 2009) which are somewhat reflective of the disciplines (e.g. organisational psychology) that have mostly examined employee job satisfaction, there is an emphasis on quantitative methods. Two key approaches include the facet and the global perspectives. The facet approach (multiple-item measure) measures specific dimensions of job satisfaction. Whereas, the global approach measures general or overall job satisfaction (Buitendach & Rothmann, 2009; Spector, 2012). Numerous studies (e.g. Alghamdi, 2015; Dall'Ora, Griffiths, Ball, Simon & Aiken, 2015) have used the global approach to measure job satisfaction. Building on this quantitative tradition, this research will follow an identical approach. In contrast, several researchers have assessed employees' overall job satisfaction by asking their managers to predict their employee's level of job satisfaction. This method is, however, considered to be inaccurate since the employee is the only person aware of his or her true feelings towards their job and whether he or she is satisfied with it or not (Spector, Dwyer & Jex, 1988). Although this method allows the researcher to discover a manager's perception of an employee's level of job satisfaction, it fails to measure employees' actual job satisfaction. Therefore, it could be used to compare managers' perceptions of employees' job satisfaction while not accounting for actual employee overall job satisfaction. The following section will elaborate on job satisfaction among shift workers, in particular, due to its significant use in the aviation sector.

2.4 Shift Work

2.4.1 Job satisfaction among shift workers

Several researchers have measured job satisfaction among shift workers in different contexts (Jaradat, Nielsen, Kristensen and Bast-Pettersen, 2017; Shields, 2006). However, there was limited literature available within the aviation sector, thus this section will be reviewed based on available literature on job satisfaction among shift workers. Jamal and Baba (1992) conducted a study among nurses to compare between permanent and temporary night shift workers and found shift work to not impact the level of job satisfaction. However, rotating shifts from a day to night did result in a decrease in the level of job satisfaction. Furthermore, Jaradat et al. (2017) examined the association of shift work with mental distress and job satisfaction in relation to gender among Palestinian nurses using a questionnaire. They reported that men working shifts were less satisfied with their work than regular day shift workers. In addition, Shields (2006) reported that employees working during regular day hours were more satisfied than those who work evenings or night shifts, and employees working rotating shifts were more satisfied than those working evening or night shifts. However, Moneke and Umeh (2014) found no statistical significant relationship among shift work and job satisfaction of critical care nurse in New York. Similar findings were reported by Ruggiero (2005) for self-defined day, night and rotating-shift nurses.

The conflicting findings could potentially be due to individuals having different abilities to tolerate shift work. Some may feel alert at particular times of the day and function best at that time, whereas others may not. For example, Goswami, Jena and Mahapatro (2011) asserted that shift work accommodates “night owls”. In addition, people have different degrees of health and fitness levels, use of different coping strategies and/or are able to

organise their social and domestic life well, thus being able to manage shift work and feel satisfied with their job (Costa, 2003; Nachreiner, 1998). However, there are several reasons why people conduct shift work even though there is criticism of the concept based on empirical findings.

2.4.2 Reasons for working shifts

Although shift work has various negative effects, employees tend to prefer to work shifts due to several reasons which in turn contributes to their overall job satisfaction. The reasons for choosing to work shifts include flexibility in working hours (Awan, 2013; Finn, 1981); higher income (Awan, 2013; Peetz, Murray & Muurlink, 2012; Rathore, Sharma, Singh, Tiwari & Sharma, 2015; Shen & Dicker, 2008); lack of supervision from managers during after-hours (Hood, 1988; Peetz et al., 2012; Rosa & Colligan, 1997); freedom in working practice and pace (Hood, 1988); time for accepting and pursuing offered training (Awan, 2013); option for additional study (Rosa & Colligan, 1997); nature of the job (Rathore et al., 2015; Rosa & Colligan, 1997; U.S. Bureau of Labor Statistics, 2000); lack of options in jobs available (Peetz et al., 2012; Rathore et al., 2015; Rosa & Colligan, 1997); and convenience for domestic responsibilities (Peetz et al., 2012; Rathore et al., 2015; Rosa & Colligan, 1997).

According to the U.S. Bureau of Labor Statistics (2000), 51% of full-time employees worked shifts due to the nature of their job. A recent study on nurses conducted in India, found that all employees performed shift work as it was part of their role and the high income associated with it. Moreover, among younger respondents, 50% mentioned it was the only job available and 60% stated that it was not convenient for domestic responsibilities. However, older respondents said it was the only available job (83%) and it was convenient (66%) (Rathore et al., 2015).

Several reasons drive employees to work shifts despite of its negative impact on their health and well-being. It would be of significant benefit to explore the underlying reasons which drive employees to work shifts within the New Zealand aviation sector.

2.5 Factors Affecting Job Satisfaction

2.5.1 Personal demographic variables

The scope of this study is to examine personal variables in relation to job satisfaction among shift workers due to a considerable gap. Figure 1 illustrates a summary of the most significant variables considered for this study that would impact the level of job satisfaction among shift workers. These variables will be reviewed in the following sections based on several sectors and industries. However, there are few studies available in relation to the aviation context. Furthermore, a number of factors are influential and work in tandem with one another. The following sections provide a detailed examination of each whilst recognising its potential impact on each variable. It is important to note that this list is not limited and can include more variables, however, for this study the following are only considered.

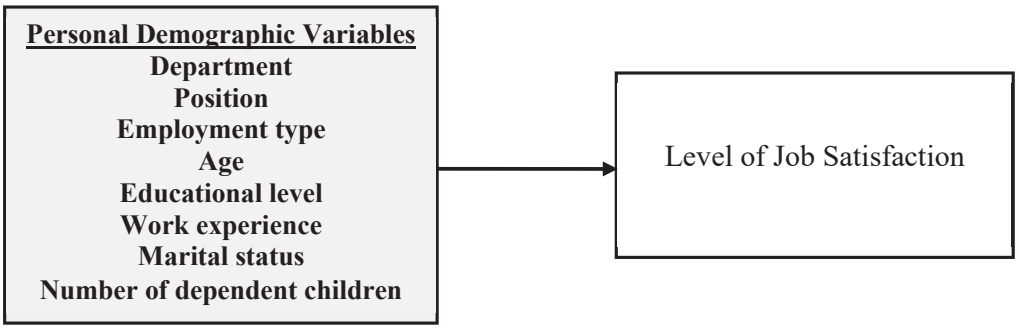

Figure 1. Personal Demographic Variables

Department

The nature of work performed by an employee within their department has a significant impact on their level of job satisfaction (Griffin & Moorhead, 2012; Sharma & Bhaskar, 1991). Employees tend to prefer variety and challenge in their jobs which allows them to use their skills and abilities (Sharma & Bhaskar, 1991). A challenging and interesting job generally leads to higher levels of job satisfaction (Locke, 1976). In a quantitative study by Kessuwan and Muenjohn (2010), a T-test and analysis of variance was applied to analyse the differences among employees' work and personal variables for their level of job satisfaction in a multinational corporation in Thailand. They found that employees experienced a high level of job satisfaction towards the work itself, as their job was challenging, interesting, enjoyable and allows authority and freedom while performing their job. However, this study was conducted in a single location, therefore the findings are not representative for the whole corporation.

Position

Contradictory findings have been found in relation to job satisfaction and work positions. Howard and Frink (1996) found a positive relationship between job satisfaction and managerial position. Where employees with a managerial position were more satisfied than non-managerial employees. This is further supported by Clark (1997) and Kawada and Otsuka (2011), who found that employees with managerial responsibilities were more satisfied than general workers. However, Gigantesco, Picardi, Chiaia, Balbi and Morosini (2003) and Kessuwan and Muenjohn (2010) found no significant statistical difference between job satisfaction and hierarchy positions.

In terms of **shift work**, executives were found to be more satisfied than non-executive employees as concluded by Goswami et al. (2011) in a quantitative study among five

ferro-alloy industries in India to explore the effect of work related problem on shift workers' attitude, aptitude and job satisfaction. However, the generalisability of these findings to different sectors could be questioned, as different sectors have different work requirements and nature of work varies significantly.

Employment type

Globally, organisations tend to hire employees to work for less than 40-hours a week in order to reduce extra costs associated with employee benefits (e.g. medical insurance and airline tickets). However, missing out on benefits could potentially lead to a decrease in an employee's level of job satisfaction. This could be a result of the part-time employee performing the same job or task as a full-time employee, but, without receiving similar benefits (Spector, 2012).

Several researchers have sought to understand the differences in behaviour and attitude among full-time and part-time employees (Conway & Briner, 2002). Understanding these differences is vital given their effects on organisational behaviour (Thorsteinson, 2003). Studies comparing job satisfaction among two groups of employments concluded contradictory findings. In a quantitative comparative study of full-time and part-time employees, Eberhardt and Shani (1984) found that part-time employees were more satisfied than full-time employees, and that this could be due to their expectations about their job. Similar results were found by Levanoni and Sales (1990). However, it was also determined that part-time employees were less satisfied (Miller & Terborg, 1979; Clinebell & Clinebell, 2007). Nonetheless, Logan, O'Reilly III and Roberts (1973) concluded that there is no difference in the level of satisfaction between full-time and part-time employees in a hospital in the United States. A meta-analysis study with a sample size of 51,213 participants conducted by Thorsteinson (2003) confirmed the

findings, with no difference found among full-time and part-time employees and job satisfaction.

Shields (2006) examined dissatisfied full-time and part-time **shift workers** in relation to gender across Canada, however, they did not disclose the industry or sector the study was conducted in. It was found that men working part-time were more dissatisfied than those working full-time. In contrast, women working full-time were more dissatisfied than those working part-time. A possible explanation identified within the study was that men working part-time possibly dislike having to share household duties. Whereas, women working full-time were possibly physically and/or mentally exhausted towards the end of the day, therefore, they prefer to work part-time as it enables them to balance between work and home responsibilities. Working part-time provides shift workers with flexibility as it allows them to have time and energy to spend with their children and perform domestic duties during their time off (Agosti, Andersson, Ejlertsson & Janlöv, 2015).

Age

A number of studies address the relationship between age and job satisfaction. There are reports of a positive relationship (Chambers, 1999; Dawal & Taha, 2006; Haqur, 2004), a negative relationship (White & Spector, 1987), a U-shaped relationship (Clark, Oswald & Warr, 1996; Gazioglu & Tansel, 2006) or no relationship (Dhanapal, Alwie, Subramaniam & Vashu, 2013; Rajput, Mahajan & Agarwal, 2017; Sarker et al. 2003; Tu, Plaisent, Bernard & Maguiraga, 2005). The body of work thus illustrates conflicting views on the relationship between job satisfaction and age.

Clark et al. (1996) suggested a U-shaped relationship between age and job satisfaction to be particularly common for males and full-time employees. Researchers have asserted that employees experience a high level of job satisfaction at the start of their career but

this starts to diminish by mid-life, and gradually ascends as ages increases. This is hypothesised to link to employees adjusting to their work and life situation over time (Gruneberg, 1979). This has been supported by Saleh and Otis (1964) where they conducted a comparative study between two groups of male managers. The increase was due to individuals adjusting to life as they age, and the decline was due to drop in physical health as well as lack of self-actualisation and psychological growth.

The findings of Goswami et al. (2011) indicated that older employees were more satisfied than younger **shift workers**. Furthermore, Parkes (2002) concluded that elder workers tend to experience difficulties in adapting to shift work more than younger workers. However, Wedderburn (1996) found that shift workers aged between 31-40 were more satisfied than employees aged under 21 and over 50 years. Furthermore, Shields (2006) noted that younger shift workers were more likely to experience job dissatisfaction when she compared employees between 25 and 39 years old.

A qualitative study conducted in Australia by Shen and Dicker (2008) examined the impacts of shift work on employees in the food industry. From the 24 employees (managers and shift workers) interviewed, it was reported that elder employees faced difficulties in adjusting to shift work, and they required more time to recover from their shifts. However, the majority of employees felt that they were adjusting better to shift work and were able to manage eating and sleeping patterns as they aged. The study found that the retirement age of shift workers was lower than other types of jobs, this could be due to the nature of the job, as it is mentally and physically demanding, that they have been experiencing throughout the years of service. Therefore, organisations should develop a Human Resources (HR) plan to maintain a sustainable workforce.

Educational level

According to Gruneberg (1979), a relationship between educational level and job satisfaction is highly likely. Studies conclude that the relationship between the level of education and job satisfaction can be either positive or negative. For example, Clark (1997), Gruneberg (1979) and Vollmer and Kinney (1955) reported a negative relationship between educational level and job satisfaction. They concluded that employees with a high educational level tend to experience a lower level of job satisfaction. This could be due to a highly-educated employee having higher expectations of securing a good job which is interesting and with a high salary. Such employees are more likely to have high aspirations for their lives and, if this expectation is not met, this could lead to disappointment, thus resulting in job dissatisfaction (Binder & Coad, 2011; Ross & Reskin, 1992)

The assumption of employees with higher level of education to secure a satisfying job has been questioned by Quinn, Staines and McCullough (1974) where they stated that several studies found this assumption to be oversimplified or wrong. In their study, they concluded that there are no associations between the level of education and job satisfaction. Idson (1990) and Kumar (2016) also reported no significant impact of educational level on job satisfaction. However, Adeoye, Akoma and Binuyo (2014), Rajput et al. (2017) and Sundar and Kumar (2012) found that educational level contributes significantly to job satisfaction.

In terms of **shift work**, a higher level of education was found to have an inverse relationship with job satisfaction among nurses as concluded by Al-Enezi, Chowdhury, Shah and Al-Otabi (2009) and Larrabee, Janney et al. (2003). Unskilled employees can

earn a good income while working shifts and this contributes to their willingness to work (Shen & Dicker, 2008).

Work experience

Work experience has an impact on the level of job satisfaction. New employees or fresh graduates may be happy to get a new job, therefore; they are satisfied with what they get (Gruneberg, 1979). A study conducted in 2015 in Hong Kong found that 76% of fresh graduates are satisfied with their first job and a stronger result (79%) was found in Malaysia (VT Comms, 2015; Adina, 2015). The more time an employee stays at work, the more they draw a personal image of the place, and they hold sufficient experiences to determine their satisfaction level with the job. Few researchers (Dawal & Taha, 2006; Tu et al., 2005) have found a positive correlation between the level of job satisfaction and job experience.

Furthermore, Nestor and Leary (2000) concluded that employees with more than 21 years of experience are more satisfied than employees with one to five years. However, Loscocco (1990) found that employees with the highest years of experience were the least satisfied with their jobs. Yet, a quantitative study was conducted by Haq and Chandio (2014) to analyse the level of job satisfaction for a sample of 500 employees working in a service-oriented organisation using an Analysis of Variance test to conclude that there was no significant relationship between the length of service and job satisfaction. Similar conclusions were reached by Rajput et al. (2017) in their empirical study of job satisfaction among masons.

In terms of **working shifts**, employees with more experience in shift work tend to know how to deal with the difficulties of shift work. However, they experience more fatigue, are less motivated, and more likely to have higher turnover rates. On the other hand,

employees with less experience tend to have higher absenteeism rate in comparison to more experienced shift workers due to their limited experience in having control over shift work effects. It was reported by managers, in structured interviews, that employees left the organisation after working three to seven years due to the lifestyle associated with shift work (Shen & Dicker, 2008).

Marital status

An employee's marital status is another variable that can impact on his or her job satisfaction (Adeoye et al., 2014). Married employees could potentially be responsible for providing financial support to their family; therefore, a difference in the level of satisfaction could be found between married and single employees (Jayaraman, 2015).

Studies have found that married employees are more satisfied with their jobs than single employees (Chambers, 1999; Dawal & Taha, 2006). This could be in result of the excessive amount of responsibilities, such as child care and household responsibilities, that married employees tend to have, making them value and adjust to their current job (Azim, Haque & Chowdhury, 2013), thus restricting choice of alternatives and lowering expectations (Lincoln & Kalleberg, 1985). However, other studies concluded that marital status does not play a significant role in determining the level of satisfaction of employees (Azim et al., 2013; Jayaraman, 2015).

Many individuals assume that **shift work** is hard on marriage. However, this is not always the case. A study conducted by Xavier University researchers found that married employees working shifts, including employees having children, had higher level of job satisfaction in comparison to their un-married colleagues as they were able to adapt better to shift work (Adams, 2004). However, Goswami et al. (2011) found that single shift workers were more satisfied than married employees.

Bohle and Tilley (1998) conducted a longitudinal study, examining employee's attitude towards shift work and predictors of overall dissatisfaction among hospital nurses. They found no relationship between marital status and job satisfaction among shift workers. However, other researchers have identified that shift workers experience a low level of marital satisfaction and a higher rate for divorce (Costa, 1996; Presser, 2000). This could be due to the limited time couples spend together, especially if they have chidren, which possibly increases the risk of separation and divorce (Presser, 2000). It could be that couples with no children find it easy to cope with the stress associated with shift work, thus not affecting their marital stability.

Gender

Gender is a key dimension discussed in the organisational behaviour literature (Mahmood, Nudrat, Asdaque, Nawaz & Haider, 2011). Numerous studies (e.g. Jaradat et al., 2017; Tuttle and Garr, 2012) have been conducted on the relationship between job satisfaction and gender across different fields and work patterns. Various studies conclude that male employees have higher job satisfaction levels than female employees (Bender & Heywoo, 2006; Castillo & Cano, 2004). However, other studies identified that female employees are more satisfied than male employees (Kaiser, 2007; Kim, 2005; Mahmood et al., 2011; Zaman & Rahman, 2013). This could be a result of different gender job expectations (Campbell, Converse & Rodgers, 1976). Still other studies have argued that gender does not have any statistical significance with job satisfaction (Al-Ajmi, 2006).

Jaradat et al. (2017) report that there is no gender difference between **shift work** and job satisfaction among nurses. A similar finding was supported by Goswami et al. (2011), where they found no significant difference between gender and the level of job satisfaction among shift workers. However, Beers (2000) and Presser (2003) found that

males tend to work more non-standard hours than females. In contrast, a 2012 study conducted by Tuttle and Garr (2012) to investigate the effects of shift work on individuals by using questionnaires and telephone interviews noted that shift work increased in service sector jobs which are female-dominated. They found that males and females had different views about shift work; generally, females do not prefer shift work due to their family responsibilities and commitments. However, if their job requires non-regular working hours, they tend to schedule their shifts to meet their domestic obligations. Furthermore, a qualitative study examined the impacts of shift work on shift workers in the food industry and concluded that males tend to handle shift work better than females; however, one interviewee reported that 30-50 years old women are more productive in comparison to their counterparts. Therefore, gender is not a moderating factor (Shen & Dicker, 2008).

Family and number of dependent children

It is widely known that work and family are interrelated domains. Family and household duties can be energy consuming and often leads to family-work conflict (FWC) and/or work-family conflict (WFC). WFC are conflict that employees experience between their work and family responsibilities (Greenhaus & Beutell, 1985). In contrast, FWC arises when family responsibilities interfere with work. WFC causes employees to develop negative attitudes towards their job, in turn affecting their job satisfaction which impacts on overall organisational performance and success (Gozukara & Çolakoğlu, 2015).

Several research studies identified that WFC has a negative impact on employee job satisfaction (Glaveli, Karassavidou & Zafiropoulos, 2013; Gozukara & Çolakoğlu, 2015). However, the effect was able to be minimized by managerial support through appreciation and attention of employees' contribution, demonstrating an understanding towards

employee's family responsibilities, as well as providing workshops and regular psychological support (Bakker & Demerouti, 2007; Gozukara & Çolakoğlu, 2015; Karimi & Nouri, 2009). Showing support and understanding towards family conflict could provide the organisation with a favourable reputation as a family-oriented employer which can improve potential recruitment and employee retention.

In contrast, several studies have argued that family responsibilities have no effect on job satisfaction (Baral, 2016; Gao & Smyth, 2010; Jayaraman, 2015; Nielsen & Smyth, 2008). However, Dartey-Baah (2015) stated that, when it is difficult to balance between family and work, FWC and WFC causes negative impacts on job satisfaction. Luo (2016) and Tuttle and Garr (2012) outlined that family responsibilities have a stronger effect on women's job satisfaction compared to that of men. This could be due to married women preferring to work in a less demanding job so, enabling them to manage professional and personal lives simultaneously (Beauregard, 2007).

Quinn et al. (1974) mentioned a national study where it was discovered that women who have one or more children and they are less than six years old experience lower job satisfaction than women who had no children under this age. Crosby (1982) found that single employees and married employees without children are less satisfied with their jobs than those married with children. This could be a result of family responsibilities and commitments, which in turn shifts attention from work towards family. However, Hanson and Sloane (1992), Lorence (1987) and Moen and Smith (1986) found that young children have no impact on job satisfaction.

A few studies have documented that females experience problems in balancing **shift work** and family life more than males (Mills, 2014). However, Gerson (2009) suggested that men are also experiencing such an issue. Female employees with young children have

reported tiredness and interrupted sleep after completing night shifts (Costa, 1996). Shen and Dicker (2008) found that married employees who work shifts and have children are more likely to experience family conflict because of their inability to participate in family duties.

According to Presser (2000), men married for less than five years, with children and working fixed night shifts were six times more likely to divorce than those who work day shifts. In contrast, women who were married for more than five years with children were three times more likely.

The inconsistent findings highlight the need for further research regarding the personal demographics of shift workers in order to achieve clarity. This study will identify the impact of the demographic variables of nature of work, position, employment type, age, education level, work experience, marital status, gender and number of children so as to determine an employee's level of job satisfaction.

2.5.2 Risk factors

Shift work has been identified as a workplace hazard due to the social and work related risks (Rosa & Colligan, 1997). In recent decades, numerous studies (e.g. Faragher et al., 2005; Castro, Carvalhais & Teles, 2015; Silva, Prata, Ferreira & Veloso, 2014) have documented the impact of shift work on individuals and organisations. As illustrated in Figure 2, shift workers experience issues with stress, health, poor sleep, fatigue, family life, and isolation. For this review, we acknowledge the inter-relationship between the aforementioned variables. However, due to the limited extent of research available on shift work within the aviation sector, the review will examine different sectoral contexts, which may share some of the features of the working environments of the aviation sector.

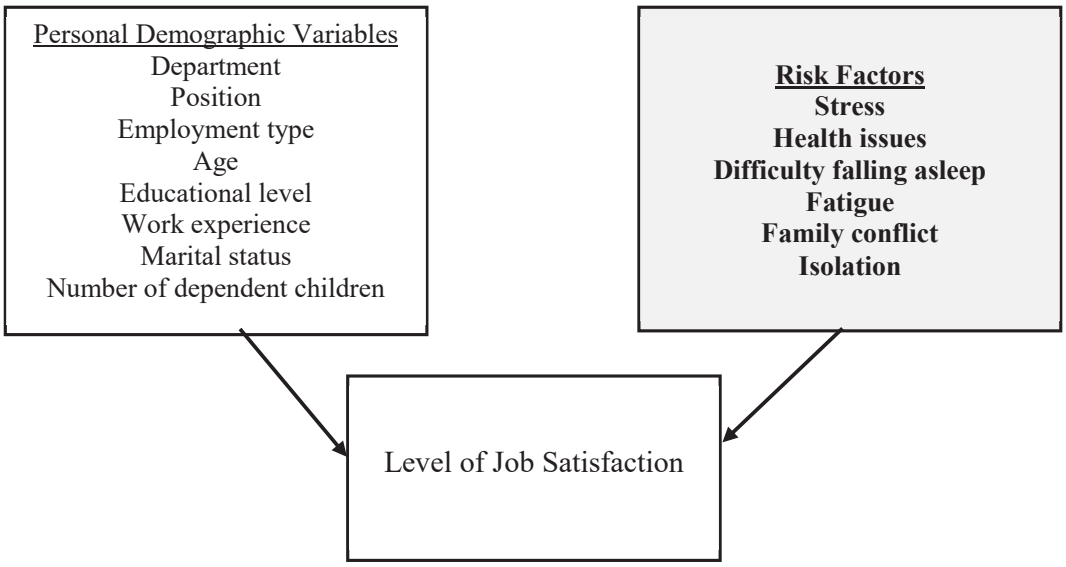

Figure 2. Risk Factors

Stress

Stress is a psychological factor which is a result of irregular sleeping hours, WFC/FWC, workload, performance pressure and relationship with others (Monk & Folkard, 1992). According to existing literature, stress is identified to have a negative impact on job satisfaction (Fairbrother & Warn, 2003; Kula, 2017; Zeytinoglu, Denton et al., 2007). Shields (2006) have determined a strong association between the level of job stress and job satisfaction among **shift workers**. Stress causes threat to an individual's physical and psychological well-being, as well as to his or her quality of life, job performance and job satisfaction (Firth-Cozens, 1993; Mansoor, Fida, Nasir & Ahmad, 2011). Several studies (Gruneberg, 1979; Spector, 2012) have revealed that stress leads to physical illness such as heart diseases, headache and peptic ulcer. Furthermore, Costa (2000) indicated that activities performed by Air Traffic Controllers lead to stress-related symptoms such as fatigue, headache, heartburn, chest pain, indigestion, hypertension, coronary heart disease, diabetes, peptic ulcer and psychoneurotic disorders. Conway, Campanini et al.

(2008) established that stress associated with work has most relevance to an individual's lack of health.

Jamal and Baba (1992) argued that the level of stress is related to the nature of work. Their quantitative study of 1,148 nurses at eight hospitals in Canada found that those working fixed shifts experienced less stress in comparison to those performing rotating shifts. Moreover, employees working in non-intensive care departments experience less stress in comparison to employees working in the intensive care department.

In addition, lack of supervisor and co-workers support, customers and family conflict can also cause stress. Lack of support from supervisor has an influence on the level of stress in the workplace. This is evident in the work of Sargent and Terry (2000) which discovered that a high level of support given by a supervisor decreases employees' stress level, in turn increasing employee job satisfaction. Moreover, co-worker support (Sargent & Terry, 2000) and attitude (Weiss & Shaw, 1979) play a role in minimizing stress while customer incivility and aggression also have a negative impact on stress and overall employee job satisfaction (Kim, Ro, Hutchinson & Kwun, 2014). Shift workers were also found to experience stress due to lack of social and family time (Baker, Fletcher, & Dawson, 2000).

A study conducted by Iqbal and Waseem (2012) examined the impact of job stress on job satisfaction for Air Traffic Controller of the Pakistan Civil Aviation Authority. They reported a negative relationship between job stress and job satisfaction, where employees who had high stress level experienced low levels of job satisfaction in contrast to those with low stress experiencing higher levels of job satisfaction. In addition, Newbury-Birch and Kamali (2001) measured the relationship between stress and job satisfaction in a sample of 109 group pre-registration house officers in England. Results illustrate that

women experience more psychological stress than men and the mean job satisfaction for men to be higher than women. They concluded that a significant negative correlation exists between stress and job satisfaction, determined by using Spearman's rank correlation test.

It has been suggested by Rosa and Colligan (1997) to perform regular exercise in order to reduce stress and illnesses (e.g. 20 minutes of jogging, swimming, or any aerobic exercise). However, exercising three hours before sleep is not advised as it tends to activate the body, making it difficult to sleep. They also recommend avoiding heavy meals full of fat and sugar especially at night.

Health issues

Shift work was found to have a negative impact on employee health and well-being (Jaradat et al., 2017). It was discovered that shift workers experience sleep disruption and poor eating habits in the short-term, whereas in the long-term, they are at risk of developing chronic fatigue, cardiovascular disease, gastrointestinal disease (due to poor eating habits), obesity, cancer, peptic ulcers, metabolic syndrome and abnormal blood glucose levels (Åkerstedt, 2003; Hartenbaum & Zee, 2011; Parent, El-Zein, Rousseau, Pintos & Siemiatycki, 2012; Phillips & Houghton, 2007). As per Haalebos (1998), Folkard stated that employees who have been working shifts for two to three decades are twice or thrice as more likely to experience heart diseases than regular day employees.

Megdal, Kroenke, Laden, Pukkala and Schernhammer (2005) conducted a systematic review and meta-analysis of 13 observational studies to assess the link between breast cancer risk in women working night shifts, majority being cabin crews. A positive relationship was identified; however, the reason was unclear but one could assume that it could be due to working night shifts which reduces the production of a hormone that is

considered to have a cancer-preventing effect. Furthermore, in 2008, The International Agency for Research on Cancer (IARC) found that shift work that involves circadian disruption could possibly increase the risk of cancer, especially breast cancer in women, thus validating the previous assumption (Aspen Publishers Inc., 2008). In addition, a few studies have reported a possible risk of prostate cancer among male employees who work night shifts (Dapang, Yu, Bai, Zheng & Xie, 2015; Lin, Tu, Chen & Guo, 2016; Parent et al., 2012). However, Åkerstedt, Narusyte, Svedberg, Kecklund & Alexanderson (2017) found no association between working a night shift and prostate cancer. Furthermore, Bøggild and Knutsson (2000) concluded that night shift workers have a 40% higher risk of cardiovascular diseases; this was determined by shift workers having a high cholesterol level, triglycerides, obesity and Body Mass Index (BMI).

Organisations need to acknowledge the significance of health issues associated with shift work and take necessary action in order to decrease its deleterious impacts on employee health. This could be by providing shift workers with free or subsidised medical insurance, enabling an employee to have regular access to medical check-ups covered by the insurance plan inclusive of any costs. In addition, access to health care and counselling can provide support for employees to improve physical and mental health (Rosa & Colligan, 1997).

Providing employees with access to facilities which offer healthy food options would also contribute in supporting an effective employee well-being campaign. Gatwick Airport in London, conducted a 12-week intervention programme called "Passport to Health" where 35 shift workers were offered advice regarding their diet and physical activity, and offered low calorie meals in staff cafeterias. The findings for the programme identified a decrease in weight, body mass index, waist circumference, glucose level and cholesterol level

among the 35 participants (Ruxton & Ursell, 2015). Based on these findings, it can be suggested that providing workers with a healthier meal option would potentially result in an increase in employee health and well-being.

Poor sleep quality

It is evident that night shifts significantly affect an employee's health and well-being. Therefore, it should be noted that time-oriented body functions can also lead to health issues due to not having quality and sufficient sleep which the body requires (Finn, 1981). Disturbed sleep is the most common consequence of shift work as irregular work hours result in receiving insufficient sleep (Åkerstedt, 2003; Costa, 1997; Monk & Folkard, 1992). This has been identified as leading to the consumption of alcohol through falling asleep or excessive smoking to staying awake at night (Martinussen & Hunter, 2010).

Tired employees are at risk to themselves as well as to their organisation and their customers (Hartenbaum & Zee, 2011). The human body requires a certain number of hours of sleep per night. Over a period of inadequate and poor quality sleep, the body experiences sleep debt which diminishes alertness, logical reasoning, and decision-making abilities thus resulting in fatigue (U.S. Coast Guard, 2001; Vila, Morrison & Kenney, 2002).

The relationship between **shift work** and poor sleep, poor work ability and job dissatisfaction was evident in the work of Conway et al. (2008) who investigated Italian healthcare workers. They concluded that health issues have a moderate negative correlation with job satisfaction. Furthermore, Karagozoglu and Bingöl (2008) found a negative correlation between sleep quality and job satisfaction among nurses. Shift work limits the time an employee spends with their friends and family. Therefore, they tend to neglect sleep which increases employee job dissatisfaction, absenteeism and turnover (Baker et al., 2000; Shen & Dicker, 2008). In order to minimise these variables,

organisations could periodically identify employees who are experiencing sleep disorders through health checks and transfer them to day work and monitor their progress.

Fatigue

A fatigued employee is identified as being short tempered, less motivated and alert, and possessing poor communication skills (Sadeghniiat-Haghighi & Yazdi, 2015). Such an employee is at a risk of experiencing fatigue regardless of the training, knowledge or skills they possess. Fatigue can affect an individual's performance, and increase the risk of human error which could potentially have a significant impact on personal, organisational and public safety (Sadeghniiat-Haghighi & Yazdi, 2015). As mentioned previously, fatigue can be expressed in the form of lack of sleep, energy and motivation (Åhsberg, Kecklundb, Åkerstedt & Gamberalea, 2000). From an aviation perspective, fatigue is a "condition characterized by increased physical and/or mental discomfort with reduced capacity for work, reduced efficiency in task accomplishment and motivation or capacity to respond to stimulation, typically accompanied by weariness and tiredness" (Ferguson & Nelson, 2012, p. 161). Therefore, aviation organisations have adopted an active fatigue risk management programme in order to avoid fatigue and to monitor and to track fatigue-related issues among staff (Ferguson & Nelson, 2012). The programme includes training and workshops on how to manage fatigue and sleep. Fatigue within the aviation sector is often a direct result of shift work which is due to lack of quality and adequate sleep (Ferguson & Nelson, 2012).

Shift workers, specifically those on night shifts, experience the highest level of fatigue due to poor sleep quality, thus resulting in a high rate of absenteeism (Åhsberg et al., 2008). This is further supported by Folkard and Tucker (2003) who confirm that safety and productivity of employees lessen at night. A study conducted in New Zealand to determine

fatigue among truck drivers and the degree of its effect on their driving performance identified a significant level of fatigue among the drivers, with 24% of the participants failing a standard computer test (Charlton & Baas, 2001).

Shah and Nina (2009) conducted a study to measure the relationship between fatigue and job satisfaction among doctors working at different hospitals in an Indian context using structured questionnaire with a sample of 110 participants. They found a significant negative correlation between fatigue and job satisfaction where, when fatigue increases, job satisfaction decreases and vice versa. Similar results were found by Choi and Kim (2013) in their quantitative discriptive study to identify the relationship between fatigue and job satisfaction among 162 clinical nurses at two small and medium-sized hospitals in two different cities, however, the researcher did not reveal where the study had been conducted.

The New Zealand Ministry of Business, Innovation and Employment (a super-ministry which replaced the Department of Labour) recommends that employees should not work for more than three or four consecutive night shifts as working for more than three to four nights consecutively can cause shift workers a loss of an hour to an hour and a half of sleep a day, thus causing 4.5 to six hours of sleep debt. Furthermore, it is not recommended for employees to work for more than six hours for three successive days between 12:00 and 06:00, following an 18-hour period over the three days, employees should receive two complete days off shift to recover and achieve adequate sleep (Department of Labour, 2007). Therefore, the number of successive night shifts, length of night shifts and rostered days off between shifts should be considered when creating rosters in order to reduce the overall impact of shift work on job performance and safety.

Family conflict and social isolation

A vast amount of research has documented the negative impacts of **shift work** on an employee's family and social life (Finn, 1981) as irregular working hours and a requirement to work during holidays and weekends, and feeling excluded from the people around them. Shift work leads to FWC, WFC, low level of family adjustments (Stains & Pleck, 1984; Costa, 1997), less time for leisure and community/social activities (Baker et al., 2000; Mills, 2014), low spouse satisfaction (Smith, Folkard et al., 1998) and lower attendance at childcare and school events attendance (Costa,1996; Shen & Diccker, 2008). However, Demerouti, Geurts, Bakker and Euwema (2004) argued that shift work could be seen as an opportunity which allows employees to spend more time with their family and friends if adequate days off were provided. Demerouti et al. (2004) have suggested that fixed non-day shifts including weekends be avoided in order to reduce WFC. Experiencing a disrupted social or domestic life may result in employees feeling isolated, thus affecting their health and performance (Health and Safety Excutive, 2006).

The impacts of shift work on family and social life differ between those who are married and those that are single. Married employees feel that having an understanding partner is very important to reduce family conflict and those with children are more likely to be affected as shift work restricts their availability, thus resulting in being absent from co-curricular school activities (Shen & Dicker, 2008). However, Kaliterna, Prizmic and Zganec (2004) found no difference in the overall happiness, life satisfaction or total quality of life of shift workers in comparison with non-shift workers despite reports of shift workers being more physically tired.

In most workplaces, employees do not experience isolation due to their interaction with co-workers and supervisors and, in specific jobs, interaction with customers (Janseen &

Yperen, 2004). However, employees working rotating shifts may work with different employees depending on the schedule, thus preventing them from developing strong relationships and leading to a decrease in the levels of co-workers support (Mills, 2014). Furthermore, specific roles create isolation, for example; night shift work, where employees in specific departments have minimum interaction with co-workers and customers due to the nature of the job. Role isolation creates stress, thus affecting the level of job satisfaction as concluded by Dhawan (2015) in his empirical analysis on 480 bank employees in India. Furthermore, isolation could affect an employee's morale, thus affecting his or her job satisfaction and job performance. Therefore, the organisation should plan events that could help to minimise the feeling of isolation among employees, for example, by sponsoring sports teams and organising social programmes such as get-togethers and sports activities.

The majority of the studies reviewed here focused on the impact of shift work on the risk factors. However, only a few have explored the impact of the risk factors on job satisfaction among shift workers. Therefore, in this study, the discussed risk factors are important variables to measure in terms of the extent of their relationship with job satisfaction in the aviation context.

2.6 Research Questions

Based on this review, it emerges that numerous studies have been conducted in relation to job satisfaction in various sectors. However, there still remains a need to further investigate this topic, especially in the aviation sector, due to insufficient research (see section 1.4). The factors that influence job satisfaction levels for shift and other workers need to be conjointly measured because available research is equivocal and has not made any definite conclusions about job satisfaction determinants. This is significant given

employee job satisfaction levels' noted relationship to individual and organisational outcomes such as employee productivity, withdrawal behaviours and organisational performance. In relation to shift workers in the aviation sector, this research will address the following research questions:

1. Does job satisfaction vary according to personal demographic variables?

2. What is the nature and extent of the relationship between job satisfaction and the risk factors?; and

3. Can job satisfaction be predicted by the risk factors?

An initial conceptual framework of this study is illustrated in Figure 3. It describes the possible relationships between personal demographic variables, risk factors and job satisfaction.

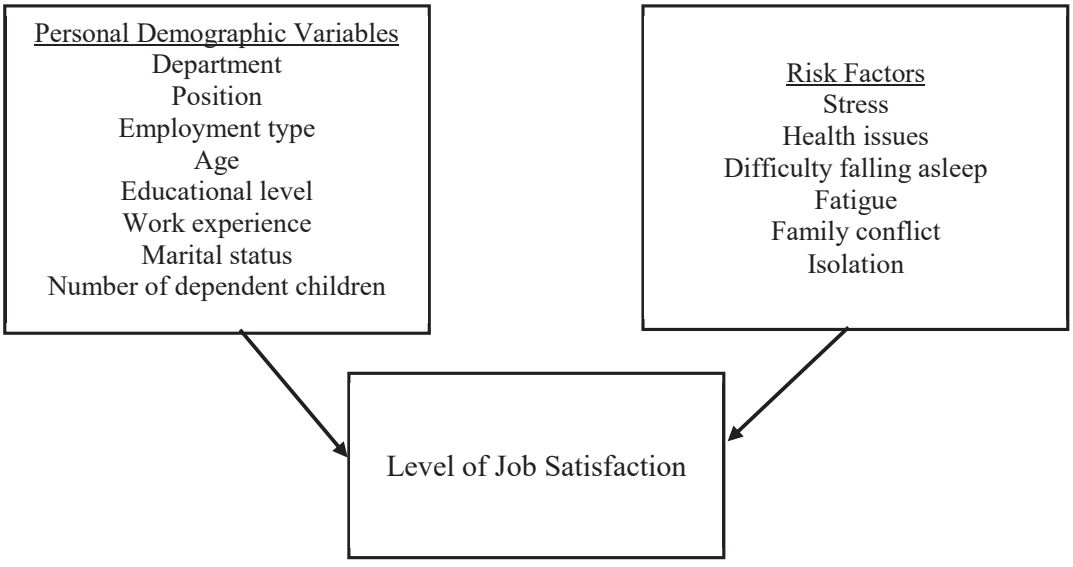

Figure 3: Initial Conceptual Framework

2.7 Summary

This chapter has provided an overview of the studies on job satisfaction, including definitions and seminal theories on job satisfaction, job satisfaction and shift work including reasons for working shifts, and factors affecting job satisfaction (personal demographics and risk factors). It emerged that there is equivocal research in relation to the personal demographic variables and job satisfaction and not enough studies have explored the extent of the relationship among the risk factors and job satisfaction among aviation shift workers. Thus, further research is required to fill the identified research gaps. These gaps informed the development of several key research questions for this study. In response to the research questions, the next chapter will detail the methodological approach of this empirical inquiry.

Chapter 3 – Research Method

3.1 Introduction

The objective of this chapter is to discuss the research methodology and techniques that have been used in this study. In order to address the research questions outlined in Chapter 2, Section 3.2 restates the study's purpose, along with its main research questions. Section 3.3 introduces and justifies the selection of particular research paradigms and the adoption of a case study approach. It also states the reasons for choosing a single organisational case study. Section 3.4 elaborates on the data collection approach, along with a justification for using the main research tool (a survey). Section 3.5 presents the access procedure, selection process and research context. Following this, ethical considerations are discussed in Section 3.6. Section 3.7 elaborates on the target participants. The pilot study which improved the survey design and the data collection process is discussed and elaborated in Section 3.8, along with content of the survey and the instruments used in this study. Section 3.9 explains the data collection procedure. Section 3.10 describes the survey diagnostics. Section 3.11 explains the quantitative and qualitative data analysis approaches. Finally, the chapter is summarised in Section 3.12.

3.2 Research Purpose

Employee job satisfaction is a key component of the work environment and organisational climate. There are personal demographic variables and many risk factors which can influence an employee's job satisfaction. The purpose of this study is to explore the impact of these demographic variables (department, position, employment type, age, educational level, work experience, marital status and number of dependent children) and risk factors (stress, health issues, difficulty falling asleep, fatigue, family conflict and

isolation) on job satisfaction of shift workers in the aviation sector in New Zealand. Specifically, this research will address the following research questions:

1. Does job satisfaction vary according to personal demographic variables?
2. What is the nature and extent of the relationship between job satisfaction and the risk factors?; and
3. Can job satisfaction be predicted by the risk factors?

3.3 Research Approach Overview

3.3.1 Research paradigms

Positivism is occasionally referred to as scientific research (Lehmann, 2010). It is "based on the rationalistic, empiricist philosophy that originated with Aristotle, Francis Bacon, John Locke, Auguste Comte and Immanuel Kant" (Mertens, 2010, p. 10). The role of the researcher is limited to the collection and interpretation of the data through an objective approach where there is a minimal interaction between the researcher and the participants. Positivist researchers follow a quantitative approach, which is a "formal, objective, systematic process in which numerical data are utilised to obtain information about the world" (Burns & Grove, 2005, p. 23). It is often called critical or postmodern research (Creswell, 2003). It is inclined to be deductive and "develops a theoretical or conceptual framework, which you subsequently test using data" (Saunders, Philip & Thornhill, 2012, p. 61).

This study primarily relied on positivist research approach and quantitative techniques as they are more suitable for fulfilling the purpose of answering the research questions and further builds on quantitative tradition (see section 2.3). Indeed, most studies which

measure employee job satisfaction have used a quantitative approach (Adeoye et al., 2014; Burch, et al., 2009; Rajput et al., 2017; Shafiq & Ramzan, 2013; Thompson & Phua, 2012).

This study also implemented elements of an interpretivist research paradigm. Interpretivists believe that reality is multiple and relative (Hudson & Ozanne, 1988). The researcher tends to rely on the "participants' views of the situation being studied" (Creswell, 2003, p. 8). Interpretivist researchers follow a qualitative approach, which allows the researcher to study perceptions, ideas and opinions. Therefore, this study has employed a qualitative approach in order to provide detailed feedback and yield richer and more revealing responses from participants (Grandcolas, Rettie & Marusenko, 2003). Beyond the approach adopted in many job satisfaction studies, the use of qualitative data in this study is designed to supplement and enrich, as well as corroborate and refute, the quantitative analysis.

3.3.2 Case study

The case study approach is an empirical inquiry that is often used when a real-world contemporary phenomenon is comprehensively investigated (Yin, 2014). The case study design involves an intensive analysis of a single or multiple cases, the term case is referred to a location or an organisation. Case studies have been used by several researchers in the field of management research (Mariotto, Zanni & De Moraes, 2014). Nevertheless, this method arises questions regarding the external validity of the research as one or multiple cases cannot represent an organisation or a group of organisations (Bryman & Bell, 2015). However, Dyer and Wilkins (1991) argue that a single-case study is better than a multiple-case study as it provides detailed observations and existing theoretical relationships are questioned and new ones are explored, which enables an extensive examination and a

deep understanding of the situation. Thus, a single-case study approach was adopted for this research. Furthermore, due to the high cost and time consuming multiple case studies need for implementation, a single case study was implemented.

According to Yin (2014), there are several rationales for a single-case study. In terms of this study, firstly, research on shift work within the aviation sector in New Zealand appears to be relatively scarce. Therefore, examining the case organisation represents a significant contribution to the knowledge and extending existing theories. It also helps to re-enforce future investigations in the field. Secondly, the case organisation is unique as it is classified as the world's best organisation and considered a key player in driving New Zealand economy which is worth analysing and investigating. Thirdly, shift work is a common case were conditions and settings are captured in daily situations where they require around the clock service. Finally, the phenomenon explored in this study is not previously examined by researchers in a social science inquiry. Therefore, a single organisational case inquiry provides the 'best fit' for this exploratory inquiry.

3.4 Data Collection Approach

Within the case inquiry, a cross-sectional survey tool has been used for several reasons. Firstly, it gives researchers the ability to compare many different variables at a single point in time and the ability to generalise the results with the least social desirability effects (Bryman & Bell, 2015). Secondly, due to the participants not being deliberately exposed to the researcher (only minimal interaction with researcher, that is, through emails), there are minimal ethical difficulties (Mann, 2003). Lastly, it elicits data that would enable a comprehensive and robust responses. Due to time constraints, it was not feasible to undertake a longitudinal study were researchers are allowed to measure the

change in variables over time, thus enabling the prediction of future outcomes (Bryman & Bell, 2015).

There are several methods for data collection techniques which can be considered for this study. Attitudes towards work can be assessed through both interviews and surveys. A survey was considered to be the most appropriate instrument here due to its highly structured techniques, which are also useful for studies of the beliefs, values and attitudes regarding a particular situation (Bowditch & Buono, 2004). Surveys, and in particular online surveys, are relatively inexpensive, have higher answered questions with less missing data in comparison with other types of surveys (e.g. supervised and postal surveys), and are most frequently used method in collecting substantial amounts of data (Bryman & Bell, 2015). Participants tend to find it easier to answer surveys online at their own convenient time instead of using paper and pen and also they tend to provide more detailed replies to open ended questions, if any are available (Bryman & Bell, 2015).

Furthermore, online surveys provide the advantage of using an attractive format and design, and reduces the possibility of skipping questions as web-based surveys can be programmed where only one question is visible, thus removing the likelihood of missing data (Gelder, Bretveld & Roeleveld, 2010). In addition, it enables the automatic processing system to easily and quickly collect data for analysis. However, it requires a great level of trust on the part of the respondents. If any suspect that they will be identified, they may either refuse to participate or they may not respond truly (Bowditch & Buono, 2004).

Online surveys are also associated with non-response bias. However, to overcome this problem, it is advised to contact the prospective participants prior to sending them the survey, send them a reminder email at least once and provide progress indicator bar in

order to reduce the number of participants who may quit the survey while they are half way though completion (Bryman & Bell, 2015). The risk of multiple replies is common in online surveys, where participants can undertake the survey more than once, thus leading to inaccurate results. However, few online survey platforms have control over this issue (see Section 3.8.2). For the above-mentioned reasons, despite the limitations associated with them, an online survey was used in this study.

3.5 Access and Selection

3.5.1 Access

A large New Zealand airport was contacted in early November 2016 to gain approval to conduct the study. The People and Capability Advisor, at the time, granted permission to conduct the study upon approval of the head of department. In October 2016, I was notified by the airport company that the Acting General Manager for Aeronautical Operations had declined the request due to increase in traffic expected over the summer period and also structure change within the operations department. However, they suggested that they may be able to provide support and participate in the research if it was delayed till early March 2017. As this would have resulted in a significant stretch of my set time-frame, an alternative organisation within the sector with similar working conditions was sought.

After examining several workplaces, I decided on, and sought and obtained permission to conduct the study within the case organisation from the organisation's Strategic Wellbeing Manager (Appendix A). A wellbeing programme consultant was assigned to support and facilitate the survey. The consultant provided e-mail addresses of those employees working shifts.

3.5.2 Research context

This study was conducted in an aviation organisation in New Zealand between December 2016 and February 2017. The organisation belongs to the aviation sector which is one of the most important sectors, being operational 24 hours a day, 365 days a year. The operation is reliant on individuals who work in shifts with various patterns, durations and conditions throughout its operational period.

The case organisation was selected due to it being one of the best organisations for the fourth consecutive year (2013-2016) in global rankings within its sector (New Zealand Media and Entertainment, 2016). The organisation is a key player in driving the local economy and supporting travel, tourism and trade (Case Organisation, 2015). It supports over 11,200 jobs across the country and is a significant contributor to trade through its cargo and export service. In addition, it brings 40% of visitors to New Zealand in order to aid the nation's tourism industry (Case Organisation, 2015). In addition, it provides services to several airports in New Zealand, including ramp and cleaning, baggage, airport and passengers and operations performance.

3.6 Ethical Considerations

As with all research, there were ethical considerations for this inquiry and Massey University procedures were observed. Prior to initiating the research fieldwork, ethical aspects of the study were discussed with supervisors, researchers and academic peers. An ethics check-list questionnaire was answered, and a summary of the project and ethical issues considered in the study were provided. Finally, a low risk notification application was submitted to the Massey University Human Ethics Committee (MUHEC), with approval received on 11 June 2016 (Appendix B).

With regard to the study participants, their privacy was guaranteed by non-disclosure of their identities and aggregation of data results. In addition, all participants were provided with all information in the email (Appendix C) relevant to their decision to participate. Participant consent was also obtained and stored securely electronically. Individuals had the right to withdraw from the study at any time.

With respect to data analysis, only the researcher and supervisors were privy to the data and analytic output. All data were processed via statistical software (SPSS) on a password-accessed computer. Regarding data management, all hard copies of results and analytic output were maintained in a lockable filing cabinet and on a password-accessed computer in the researcher's office. The researcher conformed with the MUHEC requirements around eventual data disposal (by deleting relevant files and shredding hard copy material).

3.7 Target Population

In order to avoid sampling error**,** the target population was the entire population who work shift in the case organisation (Jacobs, 2013). According to the well-being consultant (personal communication, November 30, 2016), 922 employees work within four different departments (see Table 2). Given the purpose of the study, there were no constraints on the type of professions held by informants.

Table 2

Number of Employees in Each Department

Department	Number of employees
Ramp and Cleaning Services	339
Baggage Services	180
Airport and Passenger Services	386
Operations Performance	17
Total	922

Two employment statuses (full-time and part-time) were included in the study as these are most dominant in the organisation. Full-time employees spend around 24% of their time at work (2,080 hours per year). Part-time employees spend approximately 18% of all their time at work (1,560 hours per year) (personal communication, November 30, 2016). Both types of employment follow shift work patterns of the organisation. The organisation follows an eight-hour shift pattern (with three early shifts, three late shifts and three days off) or a 10 hour shift arrangement (with four days on and four days off work) (personal communication, November 30, 2016).

The ramp team guides the planes into gates and push them back again. They are also responsible of loading and unloading of baggage and washing planes windows under all weather conditions. The cleaning team is in charge of keeping all aircrafts clean and presentable. This job requires employees to be physically fit, patient, and able to work under pressure (Case Organisation, 2017). The baggage services team is in charge of handling bags securely and making them ready for travellers on time. This job requires employees to be physically fit and able to work under pressure regardless of the weather condition (Case Organisation, 2017).

The airport and the passenger services team is the face of the organisation, where they provide help and guidance to the travellers in a very busy working environment. They strive to provide outstanding customer service to increase customer's trust, loyalty and satisfaction thus increasing brand awareness. The job requires employees to deal with travellers with special needs, diverse cultures, attitudes and different scenarios. Therefore, this role requires employees to be passionate, energetic, flexible, easy to adapt to different scenarios and have a great personality (Case Organisation, 2017).

The operations performance team is responsible for ensuring that all planes are ready to operate. This department needs to follow a schedule; therefore, employees need to be highly committed and consistent (Case Organisation, 2017).

3.8 The Survey

3.8.1 Pilot study

As described by Prescott and Soeker (1999), a pilot study is a smaller version of a larger scale study or a trial run of methods and/or measures. It enables researchers to identify flaws, create data collection and analysis plans and attain feedback from participants (Beebe, 2007). In social science research, a pilot study is described in two different ways of implementing into a study: i) as a feasibility study to conduct a small trial of the larger study or ii) as a method of assessing the instrument that will be used in the primary research (Van Teijlingen & Hundley, 2001). In this research, a pilot study was used to assess the instrument's face and content validity.

The survey for the pilot study was open for two weeks from 29 September to 6 October 2016. All responses were recorded by Qualtrics (online survey software). In this study, content and face validity were established by five potential participants whom were

academics, researchers and sector specialist (former shift worker) with respect to the survey questions utility to the shift workers in the aviation sector as a whole, and specific relevance for the case organisation. They were asked to examine the instrument for clarity, content, length and format.

Participants suggested clarifying questions to specify what exact information is required from the questions, to provide contact details of researcher if any queries arose, indicating whether the employees have been contacted by their management about the survey, and finally, the age question is sensitive. Therefore, it was advised to provide age groupings.

In line with Lancaster, Dodd and Williamson's (2004) view, participants in the pilot study were not included in the main study as they were not affiliated with an aviation organisation nor were they shift workers.

3.8.2 Survey content

The first section of the survey consisted of questions concerned with nine personal demographic variables to deepen understanding of their impact on job satisfaction among shift workers. These variables include: department, employment type, position, age, level of education, work experience, marital status, gender and number of dependent children (Appendix D). The second and third sections of the survey consisted of a mix of open and closed-ended questions. Two types of closed questions were chosen for this research: Likert and ranking scale. Many of the close-ended questions, with a five-point Likert scale, were used to explore job satisfaction, reasons and drawbacks of working shifts. Closed-ended questions were used as they are easy and quick to complete by ticking answers, enhance the comparability of answers and provides the ability to clarify questions by providing choices. However, answers are limited and fixed where participants cannot provide interesting replies (Bryman & Bell, 2015). Therefore, a

limited number open-ended questions were also included in the survey to allow the participants to freely express their opinions and provide further clarification of their answers (Zikmund, 2003). It also allows the researcher to find unexpected responses regarding the topic.

Several factors were taken into consideration while designing the survey including rephrasing few statements in the instruments to adapt to the New Zealand cultural definitions, the inclusion of instructions about how to respond to each question, providing progress indicator and presenting each question separately in order to reduce non-response bias (Bryman & Bell, 2015). Furthermore, participants were prevented from taking the survey multiple times via the Prevent Ballot Box Stuffing option, which places a cookie on the respondents' browser when they submit a response. In order to overcome the problem of non-response bias, survey questions were carefully ordered from least sensitive to most sensitive and questions were precisely worded (Grandcolas, Rettie & Marusenko, 2003).

3.8.3 Survey instrument

In this study, job satisfaction was measured using a version of the Index of Job Satisfaction (IJS) developed by Brayfield and Rothe (1951). This instrument measures overall job satisfaction in a wide variety of jobs by combining the Thurstone and Likert scaling methods (Khaleque & Rahman, 1987; Thompson & Phua, 2012). According to Thompson and Phua (2012), IJS has been used in over 550 research studies such as Castillo and Cano (2004), Hoekstra (2014), Khaleque and Rahman (1987) and Taghipour and Dezfuli (2013). The IJS scale is an effective and common scale due to its extensive use in research, and due to its reliability, is the most appropriate measure for this research.

According to Brayfield and Rothe (1951), the IJS consists of 18 items with a reliability coefficient of .77 which was corrected by the Spearman-Brown formula to .87. Each of the items has a five-point Likert scale from *strongly agree* to *strongly disagree.* The scale contains 9 positive and 9 negative statements. The scoring of each statement varied. Items 1, 2, 5, 7, 9, 12, 13, 15 and 17 were scored as: Strongly agree=5, Agree=4, neither agree nor disagree=3, Disagree=2 and strongly disagree=1. The scores of the rest of the questions were reversed, and recorded in Statistical Package for the Social Sciences (SPSS) Version 24 as (1=4, 2=3, 3=2, 4=1). The total score was calculated by adding all the numbers from each answer's rating. The range of a possible total score was between 18 and 90, with 54 being the neutral point. Higher scores represented job satisfaction and lower scores job dissatisfaction.

During implementation, a system glitch resulted in the survey being distributed with one of the 18 items not being visible to the respondents. After consulting several academics and researchers, two preferred options emerged. The first was to find a shorter version of the planned index and calculate its reliability and, if valid, proceed with it. The second was to calculate the reliability with the missing item; if the reliability score was greater or equal to .7, then it is considered satisfactory acceptable (Roni, 2014), and the analysis could proceed. After finding shorter versions and assessing the reliabilities for each using Cronbach's alpha, adoption of the full version of the index with a missing item (item 1) was considered the better approach (refer to Table 3). The scale thus contained 8 positive and 9 negative statements. The total score was calculated by adding all the numbers from each answer's rating. The range of a possible total score for the IJS was between 17 and 85, with 51 being the neutral point.

Table 3

Reliability of Job satisfaction

Cronbach's Alpha	N of Items
.824	17

The survey also included three questions adapted from the Standard Shift Work Index (SSI) created by the Shift Work Research Team at Swansea University (Barton et al., 1995). The first question determined the motive of working shifts by ranking the nine statements provided with 1 being most important and 9 being the least important. The second question determined how often the participants experience the drawbacks of working shifts. Each drawback has a five-point Likert scale from *always (5) to never (1).* The third question determined whether the overall benefits of working shifts outweigh the drawbacks with a five-point Likert scale from *strongly agree (5)* to *strongly disagree (1).*

At the end of the survey, participants were asked if they would like to receive a free copy of the aggregated results.

3.9 Data Collection Procedure

The case organisation manager emailed all employees who work shifts to inform them about the company's participation in this study (Appendix E). Survey invitation letters were then distributed on 10 December 2016 via an online survey platform (Qualtrics Software); the email outlined the purpose and rationale for the study and included a link to the online survey (Appendix C). After clicking on the link, participants were directed to a webpage displaying the survey cover page (informed consent form). The cover page (informed consent form) described the voluntary method of participation, assured strict

privacy and provided the option for withdrawal at any time. It also provided the estimated duration of the survey (five to 10 minutes). The purpose of the research was also displayed on the cover page (informed consent form). After accepting the terms, participants could proceed with the survey. Thus, participation in this study was completely voluntary (see Section 3.6).

Participation before 7 January 2017 allowed participants to be placed into the draw to win a $100 Prezzy card. Four cards were available to give away in the first four weeks of the survey. Participants whose responses were completed received an email announcing the name of the winner along with a note of appreciation. Participants who did not complete the survey or had not started it by that time received a reminder email along with the name of the winner in order to reduce non-response bias (Bryman & Bell, 2015). The survey closed on 4 February 2017 and responses were automatically recorded by Qualtrics.

3.10 Survey Diagnostics

3.10.1 Response rate and sample profile

From the 922 survey invitations, 330 responses were recorded between December 2016 and February 2017 (a response rate of 35.79%). According to Nulty (2008), most online surveys achieve an average response rate of 33%, therefore, this study's response rate was considered satisfactory.

A substantial minority of the participants (44.4%) were from the airport/passengers services, 32.1% were ramp and cleaning services, 20.9% were baggage services employees and 2.5% operations performance services. A total of 63.2% of participants were part-time employees and 36.8% were full-time. The majority (80.1%) were team members and 19.9% were managers, support managers, team managers or team leaders.

A total of 63.2% were aged between 15 and 44 years while 33.2% were 45 to 64 and 3.6 % were 65 year or older. Most (37.9%) had high school qualification while 36.1% had a diploma or certificate, 4.3% had no qualification and 21.6% had a bachelor degree or higher. In terms of years of work experience, 46.9% of the participants had five years of experience or less, 36.1% had between six and 10 years where, 9.4% had between 11 and 15 years, and finally, only 7.6% had more than 15 years of experience. The majority (72.6%) were married or in a relationship, 16.2% had never married, 6.5% were divorced, 2.9% were 'other' and 1.8% were widowed. There were slightly more male participants (52.7%) than females (47.7%). Half (50.9%) had no dependent children while 16.6 % had one and 31.1% had between two and five; 1.6% had more than five children. This sample provides a good cross-section of respondents across an array of demographics.

3.10.2 Missing data, non- response bias and common method bias

After examining the recorded responses and conducting Little's Missing Completely at Random (MCAR) test, we concluded that the data were completely missing at random ($\alpha>.05$). Therefore, the Complete-Case Analysis (CCA) approach was used and only fully answered surveys (278 responses) were included, discarding those with few missing data. This approach yields unbiased estimates of mean response trends (Nakai & Ke, 2011).

Non-response bias is the expected mistake in estimating a population characteristic based on a sample of data which is under-represented due to non-response (Berg, 2005). Non-response bias was tested using the goodness of fit test. All responses prior to 7 January 2017 were considered "early", whereas, later responses were considered "late". In comparing a few demographic variables from both timeframes, we can see that there is no statistical difference between the variables ($p>.05$, see Table A1). Therefore, it was concluded that non-response bias was not a major concern.

Common Method Bias (CMB) is a measurement error which happens when an instrument introduces bias (Roni, 2014). CMB was tested using Harman's single factor test. All independent variables were loaded into a one common factor. The result was obtained by running un-rotated factor solution and 1 number of factor. The first component accounts for less than 50% of the all variables in the model (see Table A2), therefore, common method bias was not a major concern.

3.10.3 Assumptions testing

Assessing normality of the data

The normality of the data (i.e. its distribution) was analysed first. Normality tests, such as Kolmogorov-Smirnov (K-S) test and a Shapiro-Wilk (S-W) test, supplemented the visual inspection from frequency distribution (histograms) or Q-Q plot (Ghasemi & Zahediasl, 2012).

The total job satisfaction level had a mean score of M=63.09 and standard deviation of SD=7.716. Reported 5% Trimmed Mean was Mtrimmed=63.37, which was slightly different from the normal mean score as shown in (Table A3); therefore, the extreme cases did not pose a significant influence on the mean of the dataset and did not require further investigation.

The K-S test and S-W test showed that ($p<.05$) as illustrated in (Table A4). Therefore, job satisfaction was not normally distributed. However, according to Ghasemi and Zahediasl (2012), the distribution of the data is not a major problem and can be ignored if the sample size is greater than 30 or 40.

Assessing homogeneity of variances

Homogeneity of variance means that the variance of the outcome variable is equal at all levels (Field, 2013). This assumption was assessed by using Levene's F test (Field, 2013). The results for this test are shown in (Table A5) where F=.895 and p=.678. Since p>.05, it was concluded that the variance between the three groups was not significantly different. Therefore, the assumption of homogeneity of variance was met.

Assessing multicollinearity

Multicollinearity is "a situation in which two or more variables are closely linearly related" (Field, 2013, p. 1013). This assumption was assessed by using Variance Inflation Factor (VIF) to indicate whether there is a strong linear relationship among the variables (Field, 2013) and Tolerance, which is the reciprocal of VIF. Results for these tests are shown in (Table A6). For all risk factors, T>.1 and VIF<10, so there was no multicollinearity in the data and the assumption of multicollinearity was met.

Test for outliers, normality and linearity (job satisfaction-risk factors)

Outliers have a profound influence on linear regression and it is reasonable to remove them when they are due to data entry error or "when there are special circumstances surrounding a specific case" (Sweet & Grace-Martin, 2011, p. 181). Therefore, the availability of outliers in the data was examined. One outlier was found; further inspection was required to determine the reason behind this. Since data were directly imported from Qualtrics, there was no chance of data entry error. We examined if there were any special circumstances by reading all comments provided by the participant. It emerged that one respondent faced a "change of circumstances at home and personal commitments" which made him or her think of "resigning". The participant was already determined to find a

new job; therefore, he or she was experiencing significantly low job dissatisfaction. As a result of the evidence, the outlier was removed from the data set and 277 responses were used for analysis. As illustrated in (Figure A1 and Figure A2), the residuals were normally distributed and had a linear relationship.

3.11 Data Analysis Approach

3.5.1 Quantitative data

Quantitative/quantifiable data were handled and computed using SPSS, which provides the necessary tools for data storage, data management, modifications and complex statistical analysis. Coded data were downloaded in a special format from Qualtrics that is compatible with SPSS. A backup of the data was made and encrypted for safety reasons. Reverse coding was required as several questions were designed to be negatively worded.

Furthermore, descriptive statistics were used to describe the personal demographic variables, which include department, employment type, position, age, level of education, work experience, marital status, gender and number of dependent children respectively. Inferential statistics; General Linear Model (GLM), Analysis of Variance (ANOVA), correlation, multiple linear regression were used to answer the research questions. For all inferential statistical tests, alpha was set at .05. Therefore, any inferential statistical test with a p-value exceeding .05 indicated no statistical significance.

ANOVA assumptions were assessed by testing for normality and homogeneity of variances. Regression assumptions were assessed by testing for multicollinearity, outliers, normality and linearity prior to conducting the analysis (see Section 3.10.3).

GLM was used to find if there is an impact of the personal demographic variables (department, position, employment type, age, educational level, work experience, marital

status and number of dependent children) on job satisfaction. ANOVA test was used to compare the means of the departments in terms of job satisfaction. In addition, a correlation test was used to examine the extent of the relationship between the risk factors (difficulty falling asleep, health issues, stress, fatigue, family conflict and isolation) and job satisfaction. A hierarchical regression test was used to examine whether or not the level of job satisfaction (the dependent variable) can be predicted by the risk factors (the independent variables). The order of entry of the risk factors into the regression model was based on the outcome of the correlation test between these risk factors and the level of job satisfaction (Kim, 2016).

3.5.1 Qualitative data

Responses to open-ended questions were analysed using a thematic analysis as it is the most common approach for qualitative data analysis (Bryman & Bell, 2015). This approach requires identifying certain phrases or words that frequently occurred within the data and categorise them into themes (Bryman & Bell, 2015). This can be done manually to avoid the ambiguity associated with software (Popping, 2015). However, this method could be challenging as the answers are somewhat unique (Zikmund, 2003). At the conclusion of the open-ended questions, a number of clear and consistent themes emerged that corroborated, and none refuted, the quantitative findings and percentages of each identified concept were calculated in order to enrich interpretation of the quantitative findings.

3.12 Summary

This study adopted a largely positivist research approach, using a quantitative methodology as the primary mode of investigation. A qualitative approach supplemented it in order to gain an understanding of underlying reasons and opinions of participants on

certain issues, and to corroborate statistical findings. The study was conducted in the aviation sector due to it being one of the important sectors that is operational around the clock and due to the limited availability of research in this area. One case organisation was explored to provide detailed observations from a cross-sectional survey. This type of survey was preferred over a longitudinal study as it elicits data that can enable a comprehensive and robust response to the key research questions. The survey was piloted before being distributed and data collected via an online survey platform. The survey included a mixture of open and closed-ended questions. The target population were all shift workers in the case organisation. All participants were free to withdraw from the study at any time, participation in the study was completely voluntary and strict confidentiality was guaranteed. Furthermore, data were handled and computed using SPSS and several analysis techniques were selected in order to answer the research questions. A satisfactory survey response rate was attained. The next chapter presents the results of the study.

Chapter 4 – Data Analysis and Results

4.1 Introduction

The previous chapter detailed the methods and data analysis tools used to gather quantitative and qualitative data at the case organisation. This chapter presents the statistical and qualitative results from analyses of both categorical and open-ended responses to the survey in order to answer the research questions. Section 4.2 provides the contextual survey data. Empirical findings, drawing on both forms of inquiry for the first and second research questions respectively, are presented in Section 4.3 and 4.4. Quantitative and qualitative data also provide empirical evidence for analysis in relation to the third research question in Section 4.5. Suggestions from participants are presented and analysed in Section 4.6. This chapter concluded with a summary in Section 4.7.

4.2 Contextual Survey Data

Descriptive statistics was performed to explore the main reasons as to why employees tend to work shifts (see Table 4).

Of the nine options being ranked from 1 most important to 9 least important, participants ranked flexibility in working hours as their first (33.94%) and second reasons (23%). Gaining higher income was third (16.61%) while fourth was having the option to do further study (19.61%). The fifth reason was having the freedom in working practice and pace (16.61%). Training opportunities were sixth (18.4%). However, no supervision from managers was ranked between seventh (17.33%) and eighth (21.66%). ‘The only job available’ (43.68%) ranked last.

Table 4

Frequency Table of Reasons for Working Shifts

Reasons	Rank	Frequency	Percentage
Flexibility in working hours	1	94	33.94
Flexibility in working hours	2	64	23
Higher income	3	46	16.61
Having the option to do further study	4	53	19.13
Having freedom in working practice and pace	5	46	16.61
Training opportunities	6	51	18.4
No supervision from managers	7	48	17.33
No supervision from managers	8	60	21.66
It was the only job available	9	121	43.68

From the qualitative data, we can see that participants have highlighted three main themes as an advantage of shift work. Firstly, flexibility in working hours due to shift work provided them with the ability to perform other tasks such as domestic duties and personal commitments (e.g. a female participant, married/in a relationship, without dependent children, working part-time as a team member for the airport/passenger services department said: *"the benefits of shift work for me, are not having to ask for time off during a day for appointments, such as dental, medical, hair etc. Also, not having to travel in rush hour traffic").* Secondly, the positive contribution of shift work to work-life balance (e.g. a female participant, married/in a relationship, without dependent children, working part-time as a team-member for the airport/passengers services department commented: *"shift work had increased my job satisfaction as it has given me greater work life balance and I now have more time to do things I enjoy outside of work without taking a huge financial cut to do so").* Lastly, ability to study and/or have another part-time job (e.g. a male participant, married/in a relationship, without dependent children, working part-time as a team-member for the ramp and cleaning services department said:

"Shift hours should be fixed to suit sleeping patterns and also give us (part timers) a chance to take up other things such as, another part time job or study outside those hours").

Descriptive statistics were also used to assess whether employees felt that the benefits of working shifts outweighed their drawbacks (see Table 5).

Table 5

Frequency Table of Benefits Outweigh the Drawbacks of Working Shifts

	Frequency	Percent
Strongly agree	10	3.6
Agree	31	11.2
Neither agree or disagree	123	44.4
Disagree	91	32.9
Strongly disagree	22	7.9
Total	277	100

Around 44.4% were neutral regarding whether the benefits of working shifts outweighed drawbacks. However, 32.9% disagreed and 7.9% strongly disagreed with the statement. A further 11.2% agreed and 3.6% strongly agreed with the statement.

4.3 Empirical Findings for the First Research Question

The first research question asked: *Does job satisfaction vary according to personal demographic variables?* To respond to this research question, a GLM test was applied to the survey data to test whether or not the difference between the means among the personal demographic variables was significant. ANOVA and Post Hoc test were applied whenever the difference in means among the independent groups was found to be statistically significant.

Table 6 shows the results of the analysis of variance test in terms of job satisfaction. Among the personal demographic variables, the difference in means between departments was statistically significant (F=4.166, df=3, p=.007). This was evidenced by the p-value being less than the alpha level of .05. However, the difference in means among employment type, position, age, level of education, work experience, marital status, gender and number of dependent children was not statistically significant as the p-value for all factors was greater than the alpha level of .05.

Table 6

General Linear Model (Tests of Between-Subjects Effects)

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	2156.551[a]	33	65.350	1.183	.236
Intercept	19382.824	1	19382.824	350.774	.000
Department	690.531	3	230.177	4.166	.007
Employment Type	5.892	1	5.892	.107	.744
Position	25.242	1	25.242	.457	.500
Age	225.923	5	45.185	.818	.538
Level of education	233.989	4	58.497	1.059	.378
Work Experience	38.963	4	9.741	.176	.950
Marital Status	144.576	4	36.144	.654	.625
Gender	64.585	2	32.293	.584	.558
Dependent Children	427.744	9	47.527	.860	.562
Error	13427.529	243	55.257		
Total	1121938.000	277			
Corrected Total	15584.079	276			

a. R Squared=.138 (Adjusted R Squared=.021)

Table 7

ANOVA (in Terms of Departments)

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	780.232	3	260.077	4.796	.003
Within Groups	14803.848	273	54.227		
Total	15584.079	276			

An ANOVA test was applied for the variable shown to be significant ($p<.05$), department. The results showed that the difference in means between departments was statistically significant ($F=4.796$, $df=3$, $p=.003$; see Table 7).

Furthermore, Tukey's HSD was used for post-hoc analysis. The test had tight control over Type I error rate and good power (Field, 2013). As shown by Table 8, only ramp and cleaning services and airport/passengers services had a significant mean ($p<.05$).

The qualitative data revealed that, out of 123 comments, employees working in ramp and cleaning services and airport/passengers services departments experience task variety (42.3%) and challenge (16.3%). They also find the job interesting and it allows them to learn new things (29.2%). A small remainder (12.2%) provided irrelevant commentary (e.g. one respondent asked, " *WOW!, is this even a real survey question (I hope our HR Team have reviewed the surveyor's questions before investing money into this outsourced company?)*").

Based on the above analysis, we can conclude that job satisfaction varies according to certain demographic variables: department.

Table 8

Tukey HSD Multiple Comparisons

(I) Department	(J) Department	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval Lower Bound	95% Confidence Interval Upper Bound
Ramp and cleaning services	Baggage services	-.365	1.243	.991	-3.58	2.85
	Airport / passengers services	-2.967*	1.025	.021	-5.62	-.32
	Operations Performance	-7.382	2.891	.054	-14.85	.09
Baggage services	Ramp and cleaning services	.365	1.243	.991	-2.85	3.58
	Airport / passengers services	-2.603	1.173	.121	-5.63	.43
	Operations Performance	-7.017	2.946	.083	-14.63	.60
Airport / passengers services	Ramp and cleaning services	2.967*	1.025	.021	.32	5.62
	Baggage services	2.603	1.173	.121	-.43	5.63
	Operations Performance	-4.415	2.861	.413	-11.81	2.98
Operations performance	Ramp and cleaning services	7.382	2.891	.054	-.09	14.85
	Baggage services	7.017	2.946	.083	-.60	14.63
	Airport / passengers services	4.415	2.861	.413	-2.98	11.81

*. The mean difference is significant at the.05 level.

Dependent Variable: Job Satisfaction

4.4 Empirical Findings for the Second Research Question

The second research question asked: *What is the nature and extent of the relationship between job satisfaction and the risk factors?*

A correlation test was applied (see Table 9). The relationship between job satisfaction and each risk factor was significant ($p < .05$) at the .05 alpha level (2-tailed). The nature of these relationships was negative. This means that, as each risk factor increases, the level of job satisfaction decreases and vice versa. According to the rule of thumb, there was a low to moderate relationship between job satisfaction and stress, difficulty falling asleep and isolation. Furthermore, there was a moderate to substantial relationship between job satisfaction and health issues, fatigue and family conflict (De Vaus, 2002).

Four inter-related themes were extrapolated and developed from the open-ended questions which supported the statistical findings: issues with sleeping patterns; stress; fatigue; and family conflict.

4.3.1 Issues with sleeping patterns

Approximately 11% of the 140 comments indicated that respondents are experiencing issues with sleeping patterns. A male respondent, married/in a relationship, with four dependent children, working full-time as a manager for the ramp and cleaning services department said: *"I find it's hard on the body and on sleep patterns"*. *Several* respondents said that issues with sleeping are due to the consistent change in the schedule. One male, never married, without children and working full-time as a team member for the ramp and cleaning services said: "*schedule changes affecting sleep patterns"*. Furthermore, one respondent looked at the issue as a commonly-experienced problem: *"Shifts start and finish times are all over the place. We work 3 early and 3 late shifts. We should go back*

to 4 on 4 off, 12 hr. days. In the mornings, we could start as early as 3.30am and on the lates finish at 3am. This isn't good for our sleep patterns. We all have sleep problems" (male, married/in a relationship, with three dependent children, full-time manager for the operations performance department).

4.3.2 Stress

Approximately four percent of the comments revealed that the respondents' jobs were stressful and difficult. A female participant, divorced, without dependent children, working part-time as a team member for the airport/passengers services department, stated that stress is due to the working hours: *"I that find shift work puts a lot of stress on the body."* Others reported that stress is due to the need of meeting flights departure schedules. A male participant, married/in a relationship, with no dependent children, who works part-time as a team member for the baggage services department said: "*Due to the high physical work and stress to meet the deadlines of the flights departure. However, having a great team makes a big difference*." Furthermore, stress could be experienced due to passengers' attitudes or behaviour. For instance, a female participant, married/in a relationship, with four dependent children, working full-time as a manager for the baggage services department, reported: "*with pressure from the environment and sometimes the nature of people we deal with it can get extremely stressful."*

Table 9

Correlation between Job Satisfaction and the Risk Factors

		Job Satisfaction	Difficulty Falling Asleep	Health Issues	Stress	Fatigue	Family Conflict	Isolation
Job Satisfaction	Pearson Correlation	1						
Difficulty Falling Asleep	Pearson Correlation	-.288**	1					
	R	.0829						
Health Issues	Pearson Correlation	-.363**	.358**	1				
	R	.1318						
Stress	Pearson Correlation	-.295**	.403**	.490**	1			
	R	.087						
Fatigue	Pearson Correlation	-.344**	.486**	.460**	.535**	1		
	R	.1183						
Family Conflict	Pearson Correlation	-.317**	.271**	.390**	.439**	.334**	1	
	R	.1005						
Isolation	Pearson Correlation	-.245**	.315**	.393**	.400**	.455**	.523**	1
	R	.06						

**. Correlation is significant at the .01 level (2-tailed).

N=277

$R=r^2$

4.3.3 Fatigue

Approximately 12% of the comments highlighted that respondents felt fatigued and/or tired. However, they perceived that this was due to the nature of the job. A male participant, married/in a relationship, without dependent children, working full-time as a team member for the ramp and cleaning services department said: *"sometimes feels tired and fatigue but someone has to do it"*. Few tended to work extra hours to gain extra income, as working very early/late shifts results in a higher pay rate, but thus felt more tired. A female participant, married/in a relationship, without dependent children, working part-time as a team member for the airport/passengers services department said: *"to earn more money you need to work either very early or very late and that contributes to fatigue."*

4.3.4 Family conflict

Approximately 11% of the comments indicated that shift work provided them with more time for family responsibilities and to care of their children. One female respondent, married/in a relationship, without dependent children, working full-time as a team member for the ramp and cleaning services department, reported that shift work *"helps with childcare management and children who are still at school"*. However, approximately nine percent reported that it had an impact on their family. Respondents found it hard to attend family functions as most were held during the weekends. A male participant, married/in a relationship, with three dependent children and working as a full-time manager for the ramp and cleaning services department stated, "*shiftwork (full-time) affects your family. Not being able to attend birthdays, having time off with them during weekends or school events, and coming back home tired after a difficult day."* Furthermore, other workers reported that shift work had an impact on their family

relationships. A female participant, married/in a relationship, without dependent children and working part-time as a team member for the airport/passenger services department, mentioned that *"it really does affect to relationship and family situations"*. Another said: *"my wife does shiftwork too, so that we both work around our children this means our married lives and religious commitments are more than compromised"* (male, married/in a relationship, with three dependent children, full-time manager for the airport/passengers services department).

Based on the above analysis, we can therefore evidence a relationship between job satisfaction and the risk factors.

4.5 Empirical Evidence for the Third Research Question

The third research question asked: *Can job satisfaction be predicted by the risk factors?* This question examines the impact of the risk factors on the level of job satisfaction. Multiple regression analysis was used, the results of which are shown in Table 10 to 13.

Table 10 shows that the dependent variable in this multiple regression analysis was job satisfaction and the predictor (independent) variables were the risk factors. The method of entering the predictor variables into the regression model was the hierarchical method, where the order of entry was based on the extent and significance of the relationship between the risk factors and job satisfaction (Field, 2013). Since the predicted variables correlated with one another, hierarchical regression was an appropriate tool (Lewis, 2007).

Furthermore, according to Table 9, the correlation between health issues, fatigue and family conflict and job satisfaction was statistically significant. Health issues had the strongest relationship with job satisfaction (R-square=13.18%), followed by fatigue (R-

square=11.83%) and family conflict (R-square=11.97%). However, the correlation between stress and job satisfaction, followed by difficulty falling asleep and isolation was not statistically significant. Thus, as shown in Table 10, the risk factors were entered into the regression model one by one in the following sequence: health issues, fatigue, family conflict, stress, difficulty falling asleep and finally isolation.

Table 10

Hierarchical Method of Entry for the Predictor Variables (Variables Entered/Removed[a])

Model	Variables Entered	Variables Removed	Method
1	Health Issues[b]	.	Enter
2	Fatigue[b]	.	Enter
3	Family Conflict[b]	.	Enter
4	Stress[b]	.	Enter
5	Difficulty Falling Asleep[b]	.	Enter
6	Isolation[b]	.	Enter

a. Dependent Variable: Job Satisfaction

b. All requested variables entered.

Table 11 illustrates that the first, second and third models were statistically significant while the fourth, fifth and sixth models were not. Finally, based on the results, it is evident that the only significant predictor variables in this analysis were health issues, fatigue and family conflict.

Table 12 indicates the overall significance of the regression models. According to Norusis (2006), the ANOVA in multiple regression tests whether or not there is a linear relationship between the predictor (independent) variables and the dependent variable. The relationship between the level of job satisfaction and the risk factors was found to be linear, as evident from the p-values of the six models which were less than .05.

Table 11

Model Summary of the Multiple Regression Analysis

					Change Statistics				
Mode	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change
1	.363[a]	.132	.128	7.015	.132	41.687	1	275	.000
2	.414[b]	.171	.165	6.866	.040	13.101	1	274	.000
3	.442[c]	.196	.187	6.776	.024	8.251	1	273	.004
4	.443[d]	.196	.184	6.787	.000	.139	1	272	.709
5	.451[e]	.203	.189	6.769	.007	2.464	1	271	.118
6	.451[f]	.204	.186	6.780	.000	.152	1	270	.697

a. Predictors: (Constant), Health Issues

b. Predictors: (Constant), Health Issues, Fatigue

c. Predictors: (Constant), Health Issues, Fatigue, Family Conflict

d. Predictors: (Constant), Health Issues, Fatigue, Family Conflict, Stress

e. Predictors: (Constant), Health Issues, Fatigue, Family Conflict, Stress, Difficulty Falling Asleep

f. Predictors: (Constant), Health Issues, Fatigue, Family Conflict, Stress, Difficulty Falling Asleep, Isolation

Table 13 shows the coefficients values for each predictor variable in the multiple regression model which included the unstandardized coefficients β and the standardized coefficients Beta. According to Norusis (2006), β coefficients can be used to write the estimated regression equation for the model. The negative coefficient shows that the predicted value of the dependent variable decreases when the value of the independent variable increases. The level of job satisfaction was predicted only by three significant variables: health issues, fatigue and family conflict. However, the aim of the third research question was to examine if the level of job satisfaction could be predicted by the

risk factors. Therefore, Table 13 is discussed in terms of Model 6 because it includes these factors.

The table shows that, based on the coefficients of β and beta, the regression equation for the three significant predictor variables was PLJS=[76.332–(1.645×health issues)–(1.200×fatigue)–(1.338×family conflict)]. Accordingly, the predicted level of job satisfaction (PLJS) increases as the value of health issues (B=-1.645), fatigue (B=-1.200) and family conflict (B=-1.338) decreases.

Based on the above analysis, we can deduce that job satisfaction can be predicted by three risk factors (health issues, fatigue and family conflict).

Table 12

The Overall Significance of the Multiple Regression Model (ANOVA[a])

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2051.423	1	2051.423	41.687	.000[b]
	Residual	13532.657	275	49.210		
	Total	15584.079	276			
2	Regression	2668.934	2	1334.467	28.311	.000[c]
	Residual	12915.146	274	47.136		
	Total	15584.079	276			
3	Regression	3047.834	3	1015.945	22.124	.000[d]
	Residual	12536.246	273	45.920		
	Total	15584.079	276			
4	Regression	3054.254	4	763.563	16.576	.000[e]
	Residual	12529.826	272	46.066		
	Total	15584.079	276			
5	Regression	3167.152	5	633.430	13.825	.000[f]
	Residual	12416.928	271	45.819		
	Total	15584.079	276			
6	Regression	3174.140	6	529.023	11.510	.000[g]
	Residual	12409.939	270	45.963		
	Total	15584.079	276			

a. Dependent Variable: Job Satisfaction

b. Predictors: (Constant), Health Issues

c. Predictors: (Constant), Health Issues, Fatigue

d. Predictors: (Constant), Health Issues, Fatigue, Family Conflict

e. Predictors: (Constant), Health Issues, Fatigue, Family Conflict, Stress

f. Predictors: (Constant), Health Issues, Fatigue, Family Conflict, Stress, Difficulty Falling Asleep

g. Predictors: (Constant), Health Issues, Fatigue, Family Conflict, Stress, Difficulty Falling Asleep, Isolation

Table 13

The Contribution Measurements of the Predictor Variables to the Multiple Regression

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	70.968	1.275		55.661	.000
	Health Issues	-3.088	.478	-.363	-6.457	.000
2	(Constant)	74.258	1.544		48.098	.000
	Health Issues	-2.210	.527	-.260	-4.193	.000
	Fatigue	-1.751	.484	-.224	-3.619	.000
3	(Constant)	75.494	1.583		47.677	.000
	Health Issues	-1.770	.542	-.208	-3.263	.001
	Fatigue	-1.488	.486	-.190	-3.060	.002
	Family Conflict	-1.347	.469	-.172	-2.872	.004
4	(Constant)	75.652	1.641		46.102	.000
	Health Issues	-1.716	.562	-.202	-3.054	.002
	Fatigue	-1.416	.523	-.181	-2.706	.007
	Family Conflict	-1.300	.486	-.166	-2.673	.008
	Stress	-.229	.612	-.026	-.373	.709
5	(Constant)	76.361	1.698		44.976	.000
	Health Issues	-1.622	.564	-.191	-2.878	.004
	Fatigue	-1.150	.549	-.147	-2.095	.037
	Family Conflict	-1.260	.486	-.161	-2.594	.010
	Stress	-.103	.616	-.012	-.167	.867
	Difficulty Falling Asleep	-.723	.461	-.100	-1.570	.118
6	(Constant)	76.332	1.702		44.847	.000
	Health Issues	-1.645	.568	-.193	-2.898	.004
	Fatigue	-1.200	.565	-.154	-2.125	.034
	Family Conflict	-1.338	.526	-.171	-2.543	.012
	Stress	-.112	.617	-.013	-.182	.856
	Difficulty Falling Asleep	-.732	.462	-.101	-1.584	.114
	Isolation	.209	.535	.027	.390	.697

4.6 Suggestions From Participants

The participants also provided suggestions about shift working. A total of 44% suggested that it could be fixed or a constant shift instead of rotating. This would enable them to better plan their family and social life (e.g. a male respondent, married/in a relationship, without dependent children, working part-time as a team member for the ramp and cleaning services department said: *"Shift hours should be fixed to suit sleeping patterns and also gives us (part timers) a chance to take up other things such as, another part time job or study outside those hours").* A total of 35.9% suggested making amendments to the shift work rota, including extending working hours, following only one type of shift for example; either morning, evening, or night shift according to their personal preference and family obligations, changing the start and end time of shifts (e.g. a female respondent, never married, without dependent children, working part-time as a team member for the ramp and cleaning services said: *"sometimes I feel the 6 days are too long. I think that I would prefer 4 on 2 off or something of that sort, the last few days are often very tiring and hard mentally to focus and be happy"*).

A group of participants (12.8%) were concerned with their health and well-being, suggesting the provision of healthy meal plans, a gym, power naps and counselling (e.g. a female respondent, married/in a relationship, with four dependent children, working full-time as a manager for the baggage services department said: *"I think with the nature of the job we should be a lot to take power naps on our breaks…We have been stopped due to the fact that it looks unprofessional to be sleeping on your break. I think if it helps your mind be alert your focus will be better at work, and we should really be judged for what you do on our break"*). Another participant said: *"More communication to employees regarding their daily life difficulties doing shift work"* (male, married/in a

relationship, no dependent children, part-time team member for the baggage services department).

4.7 Summary

This chapter presented the research quantitative and qualitative results. Quantitative results were conveyed using descriptive and inferential statistics, while qualitative results were presented thematically, using direct speech and narrative. The majority of the participants were male part-time employees, aged between 25 and 44 years, holding a high school qualification, having five years' work experience or less, married/in a relationship and without dependent children. Working shifts provided employees with flexibility in working hours and high income, making it the most important reason for employees to undertake the job regardless of its drawbacks. Almost an equal proportion of participants who were either neutral or disagreed/ strongly disagreed with the benefits of working shifts outweighing its drawbacks.

The findings revealed that job satisfaction does not vary according to the personal demographic variables; there was no relationship between employment type, age, educational level, work experience, marital status, gender, number of children and job satisfaction. However, there was a significant difference in means between department type and job satisfaction. Further analysis revealed that, among the four departments, only ramp and cleaning services and airport/passengers services departments had significant means. This indicates that these two particular departments have a significant impact on job satisfaction. Moreover, there was a negative (low to moderate) correlation between job satisfaction and stress, difficulty falling asleep and isolation. Furthermore, there was a negative (moderate to substantial) correlation between job satisfaction and health issues, fatigue and family conflict.

The qualitative data supported and extended the quantitative findings. Health issues, fatigue and family conflict were found to be the most influential risk factors to negatively impact on the level of job satisfaction. In addition, majority of the participants have suggested to have a fixed or constant shift instead of a rotating shift. The following chapter summarises and discusses the key results with regard to their implications for theory, policy and practice, as well as the study's key contributions, limitations and areas for future research.

Chapter 5 – Discussion and Conclusion

5.1 Introduction

The purpose of this study was to explore the impact of demographic variables and risk factors on the job satisfaction of shift workers in the aviation sector in New Zealand. The study purpose was underpinned by three research questions. Responses to these questions were sought through mainly quantitative and some qualitative empirical research. This chapter seeks to locate the key findings of the study in context and to evaluate their wider implications. It begins by restating the purpose of the study, reviewing the key findings in relation to the research questions and existing literature in Section 5.2 and 5.3 respectively. Section 5.4 discusses its implications for developing theory, workplace practice and policy. Section 5.5 considers the contributions of the study. Potential limitations which could inform the focus of future studies are discussed in Section 5.6. This chapter ends with providing a summary and final remarks.

5.2 Purpose of the Study

It is critical for organisations to understand the factors which influence job satisfaction among shift workers in order to improve and increase employee well-being and productivity. Employees are required to work round-the-clock in the aviation sector as they play a vital role in the performance of the organisation and happy employees tend to contribute to a more highly performing organisation. This is achieved through quality service provided to the organisation's customers, which in turn enhances customer loyalty and satisfaction (Rast & Tourani, 2012). Many researchers (e.g. Conway et al., 2008; Jaradat et al., 2017) have studied the impact of shift work on job satisfaction and other employee related variables. However, research on shift workers in the New Zealand aviation sector is limited and an investigation was needed to further scholarly and

practitioner understanding of job satisfaction in this context. This study thus addressed three main research questions:

1. Does job satisfaction vary according to personal demographic variables?;
2. What is the nature and extent of the relationship between job satisfaction and the risk factors?; and
3. Can job satisfaction be predicted by the risk factors?

5.3 Significant Findings

5.3.1 Job satisfaction and personal demographic variables

This research explored whether job satisfaction varies according to demographic variables in the New Zealand aviation sector. The literature review revealed that the key variables of interest were department, position, employment type, age, educational level, work experience, marital status, gender and family conflict. Quantitative data analysis revealed several inconsistencies with existing research findings.

Among the demographic variables examined here, only the degree of influence between job satisfaction and an employee's department was found to be statistically significant. This could be due to the difference in the nature of work and task variety among each department. Previous studies demonstrated that the nature of work plays a vital role in influencing an individual's level of job satisfaction, with challenging jobs with a variety of work often resulting in a higher level of job satisfaction (Locke, 1976) and enabling an employee to increase their knowledge (Hackman & Oldham, 1979).

The airport/passenger services and ramp and cleaning services departments were the only two departments with significant means. This means that job satisfaction varies according

to the settings/work environment in these two departments. The qualitative findings extended the quantitative findings, with participants reflecting that the two departments include a variety of challenges and task variety, thus allowing to learn new things daily. This outcome supports extant findings which assert that there is a positive relationship between job satisfaction and nature of work (Kessuwan & Muenjohn, 2010; Goswami et al., 2011).

5.3.2 Risk factors and job satisfaction

The correlation analysis indicated that the risk factors (stress, health issues, difficulty falling asleep, fatigue, family conflict and isolation) had a statistically significant negative correlation with job satisfaction. This relationship supports previous research which shows that job satisfaction decreases as each risk factor increases and vice versa.

Analysis of the qualitative data found further support for the quantitative results which showed that stress was a result of shift work and the enviromental pressures associated with it, as well as relationships with colleagues and customer attitude. This study's results confirm Iqbal and Waseem's (2012) finding of a negative correlation between the two variables among Air Traffic Controllers working shifts. It also supports Kula (2017) and Zeytinoglu et al. (2007) who found a significant negative relationship between stress and job satisfaction among shift workers.

Researchers such as Conway et al. (2008) found that work-related stress is highly relevant to poor health. This study concluded that health issues have a moderate to substantial negative correlation with job satisfaction. Most researchers have focused on the impact of job satisfaction on employee health issues. However, few have measured the impact of health issues on job satisfaction (Shields, 2006). This study thus contributed to filling this research gap, finding that as the physical and mental well-being of shift workers

ultimately leads to job dissatisfaction, this impacts on the organisational performance, commitment and withdrawal behaviours.

Poor sleep quality is confirmed with this research and supported by previous studies such as Conway et al. (2008) and Karagozoglu and Bingöl (2008) where a low to moderate negative correlation between sleep quality and job satisfaction among shift workers was identified. As poor sleep quality increases, a decrease is evident in the level of job satisfaction. It is apparent that poor sleep quality further results in fatigue. In this study, fatigue was found to have a moderate to substantial negative correlation with job satisfaction. This result confirms the findings of Choi and Kim (2013) and Shah and Nina (2009) where a significant negative correlation between fatigue and job satisfaction was obtained. The qualitative findings have shown that employees experience fatigue mainly due to very early or late starts to their shift.

Several studies have proved that shift work leads to family conflict, in turn leading to poor job satisfaction (Glaveli et al., 2013; Spector, Allen et al., 2007; Stains & Pleck, 1984; Costa, 1997). This is supported by the results here, confirming a moderate to substantial negative correlation between family conflict and job satisfaction. The qualitative findings showed equal feeling for shift working facilitating family life and for not doing so. Few supported the views of Costa (1996, 1997), Shen and Dicker (2008) and Stains and Pleck (1984) who argue that shift work leads to low level of family adjustments, poor attendance at school events and family gatherings. However, others supported the claims of others such as Demerouti et al. (2004) who saw shift work as an opportunity which provides flexibility and additional time for family responsibilities and caring for their children. Furthermore, isolation was identified to have a low to moderate negative correlation with job satisfaction, confirming the results of previous studies (e.g.

Dhawan, 2015). The value of the qualitative data was evident as they provided further insights into the reasons for the inverse relationship.

5.3.3 Predictors of job satisfaction

The multiple regression analysis indicated that health issues, fatigue and family conflict predict job satisfaction and contribute significantly in terms of understanding the relationship in the regression model. In addition, the results identified that, within the case organisation, the level of health issues, fatigue and family conflict can be an effective element for estimating the level of job satisfaction of shift workers. It is surprising to find that poor sleep quality was not one of the main predictors as extant research observes it to be most recognized problem among shift workers as irregular working hours results in an inadequate sleeping pattern which the body requires to function effectively (Åkerstedt, 2003; Costa, 1997; Monk & Folkard, 1992). One possible explanation is that shift workers in the case organisation viewed other factors as more important than poor sleep quality. This finding is consistent with Shields (2006) who notes that health issues have an impact on job satisfaction and Choi and Kim (2013) and Shah and Nina (2009) who found that fatigue impacts on an employee's job satisfaction. Furthermore, Glaveli et al. (2013) and Gozukara and Çolakoğlu (2015) have observed that family conflict impact on employee job satisfaction.

5.4 Implications of the Key Study Findings

5.4.1 Developing theory

The majority of the few available studies in the sector have looked at how organisation-related variables impact on the level of job satisfaction among aviation employees. This study extends on the focus of the demographics and the risk factors related to shift work.

Therefore, job satisfaction can be viewed from an entirely different perspective, as existing studies have focused on organisational variables such as pay, opportunities for promotion, supervision, relationship with co-workers and the work environment (Mohanty, 2016; Rast & Tourani, 2012). Figure 4 illustrates the conceptual framework which has emerged from the key findings of this study. Among the demographic variables, the bold variable (nature of work) was found to be significant whereas among the risk factors, only the bold variables (health issues, family conflict and fatigue) were found to be predictors of job satisfaction. The dotted line arrow illustrates a low to moderate (difficult falling asleep, stress and isolation) and moderate to substantial (health issues, family conflict and fatigue) relationships with job satisfaction.

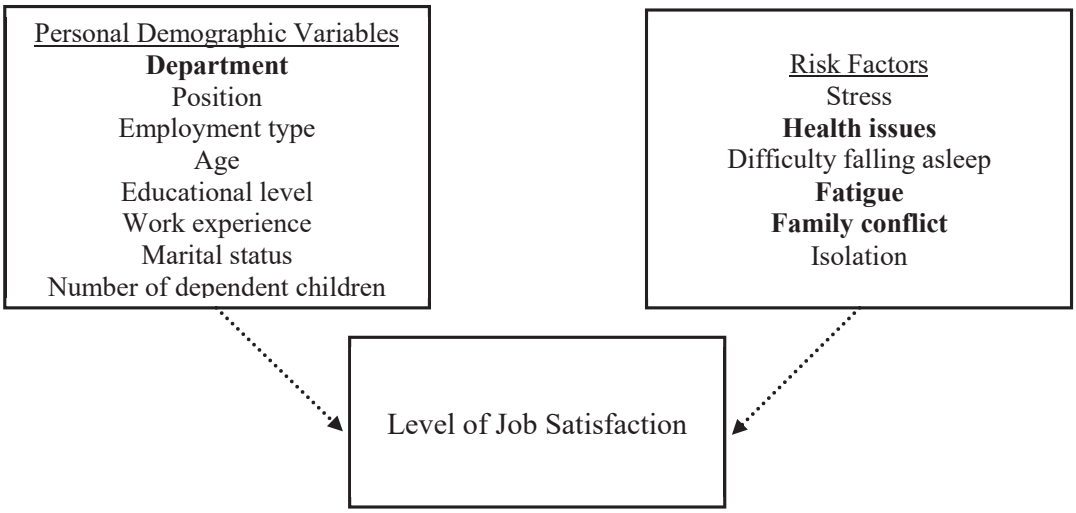

Figure 4. Developed Conceptual Framework

With regard to the main job satisfaction theories outlined earlier (see Section 2.2.2), the key findings would suggest that equitable practices *within* and *across* departments are important antecedents of shift workers' job satisfaction level. Although Herzberg's two-factor theory states that the absence of the motivating factors do not necessarily lead to job dissatisfaction, this study reveals that work itself (one of the motivators) has a

significant impact on the level of job satisfaction of shift workers. In line with the third model on job characteristics, a challenging and interesting job, requiring the use of various skills, is likely to lead to higher job satisfaction. These findings pertain to a single case organisation in a particular sector; thus their generalisability would require further study (see Section 5.6)

5.4.2 Workplace practice

The findings also help to inform HRM by highlighting how the variety and challenges in a job can lead to an increase in the level of job satisfaction among shift workers. The aviation sector has the potential to increase job satisfaction, employee retention and productivity by applying the research findings. For example, an organisation can seek to enhance productivity and workforce utility by training shift working employees in multiple roles. Furthermore, an organisation which is more involved in its employees' activities (e.g. family social programmes such as, get-togethers, sports and game activities, arranged by the organisation), given the findings, is likely to increase their job satisfaction and reduce post-work pressures on staff. Reduced job satisfaction may link to post-work stressors which can cause family conflict; thus, finding ways to reduce these stressors will benefit the organisation and its performance. This encourages a more holistic approach to employee well-being and creates new ways of interacting with employees which can deepen relationships and enhance organisational culture.

The HR literature suggests that there are best practice and best fit considerations that organisations can engage with (e.g. Boxall and Purcell, 2016). With regards to best practice, this study highlighted an area with regards to shift working that can be addressed (e.g. during induction, the employer could make new shift workers aware of the challenges associated with their work and offer guidance on managing or minimising

them). On best fit, tailored initiatives that reflect an organisation's specific departmental characteristics could help their respective worker groups to experience higher job satisfaction (e.g. task rotation may work better for shift workers in certain departments due to maintaining their interest and engagement with their work).

5.4.3 Developing policy

External and workplace policy makers have an important role and a significant responsibility to ensure the safety and satisfaction of employees. It is vital that they are aware of and familiar with the key effects of shift work on an employee's level of job satisfaction, both for the benefit of work organisations and their staff (relations). Since health issues, fatigue and family conflict were found to be three key predictors of job satisfaction, policies around health plans (e.g. free medical insurance policy), shift schedules (e.g. fixed schedules, allowing two complete days off after 18 hours period over three successive days, and no more than three or four consecutive night shifts) and performance appraisal and reward systems (e.g. vouchers, family movie/event tickets) should reflect this so as to improve the level of job satisfaction, worker performance and organisational productivity. Furthermore, induction policies could assist with preventing employees from facing difficulties associated with shift work. By developing health and safety policies, the negative effect of primary risk factors (health issues, fatigue and family conflict) decrease and the level of job satisfaction increases. Furthermore, organisations that take care of their shift workers could attract and better engage and retain staff (i.e. act as 'employer of choice').

5.5 Study Contributions

Firstly, this study contributes to the extension of job satisfaction literature as it provides the first study of job satisfaction among shift workers *within the New Zealand aviation*

sector and extends existing scholarly and practitioner understanding of the demographic variables and primary risk factors that impact the level of job satisfaction of such workers.

Second, the research addresses for the first time the *nature and extent* of the relationship between job satisfaction and the risk factors experienced by shift workers in the aviation sector in order to pay closer attention to the main factors that affect shift workers job satisfaction, with implication for employee performance and organisational productivity.

Third, this study highlights the considerable value of utilizing a primary research approach and *supplementing* it with another so as to corroborate or refute statistical findings, as well as elicit deeper insights into the relationships under examination.

Finally, the study makes a key contribution to improving workplace policies and practices related to shift working employees within the aviation sector, and potentially, beyond. In particular, the study examined and derived *three key predictors* of job satisfaction (health issues, fatigue and family conflict). Their identification is useful, for example, for employers seeking to augment shift workers' job satisfaction by focusing their efforts and initiatives on these key areas. In addition, survey data also provided unique benchmark material for other organisations in the sector who choose to examine the job satisfaction of their shift workers.

5.6 Limitations and Future Research

This research looked at job satisfaction among shift workers in the New Zealand aviation sector. The research was carefully conceived and structured, and as noted above, it produced a number of contributions in terms of extending knowledge about shift working and job satisfaction, with regard to theoretical use and practical application of the findings.

However, several study limitations were identified during the research process. It emerged that the value of integrating quantitative methods with elements of qualitative methods was important, as qualitative analysis supported the exploration of the variables which impact on the level of job satisfaction. However, time constraints meant that this research needed to be cross-sectional in nature in order to explore the impact of the demographic variables and risk factors on job satisfaction of shift workers in the aviation sector. A *longitudinal* study might yield further insights and identify changes in the characteristics of the participants and their working conditions over time which would affect their job satisfaction, and potentially, work performance. Moreover, the research was based on a single case study, limiting the extent to which its results can be generalised. That said, it may provide a benchmark for subsequent inquires, and these could involve *multiple case studies* to provide more robust findings (in terms of sectoral representation) and a better understanding of the similarities and differences between different work organisations (Yin, 2014).

In addition, online surveys were the only method of data collection in this study. It was found that not all employees had access to devices which would enable them to participate in the survey, possibly due to the nature of their job, their limited technology skills and other factors, thus contributing to a modest sample size. Future studies might thus include multiple data collection methods (e.g. a paper-based survey, Computer Assisted Personal Interviewing (CAPI)) so as to help yield a higher sample size.

Finally, this research was based on a single case organisation. Subsequent work could look at a wider array of variables at the organisational and environmental levels (e.g. via a cross-organisational or cross-sectoral survey). A second area of development could potentially focus on the relationship between job satisfaction and organisation and employee variables with regard to improving employee performance and organisational

productivity. According to numerous studies (e.g. Dhawan, 2015; Davood & Tayebeh, 2012), job satisfaction is negatively related to several organisation-related variables (e.g. performance, organisational commitment, withdrawal behaviours including absences and turnover) as well as employee-related variables (e.g. health and life satisfaction) (Hellman, 1997; Baeriswyl, Krause & Schwaninger, 2016). Furthermore, the relationship between personal demographic variables and the risk factors could be explored (see Figure 5 - italicised and bold lines).

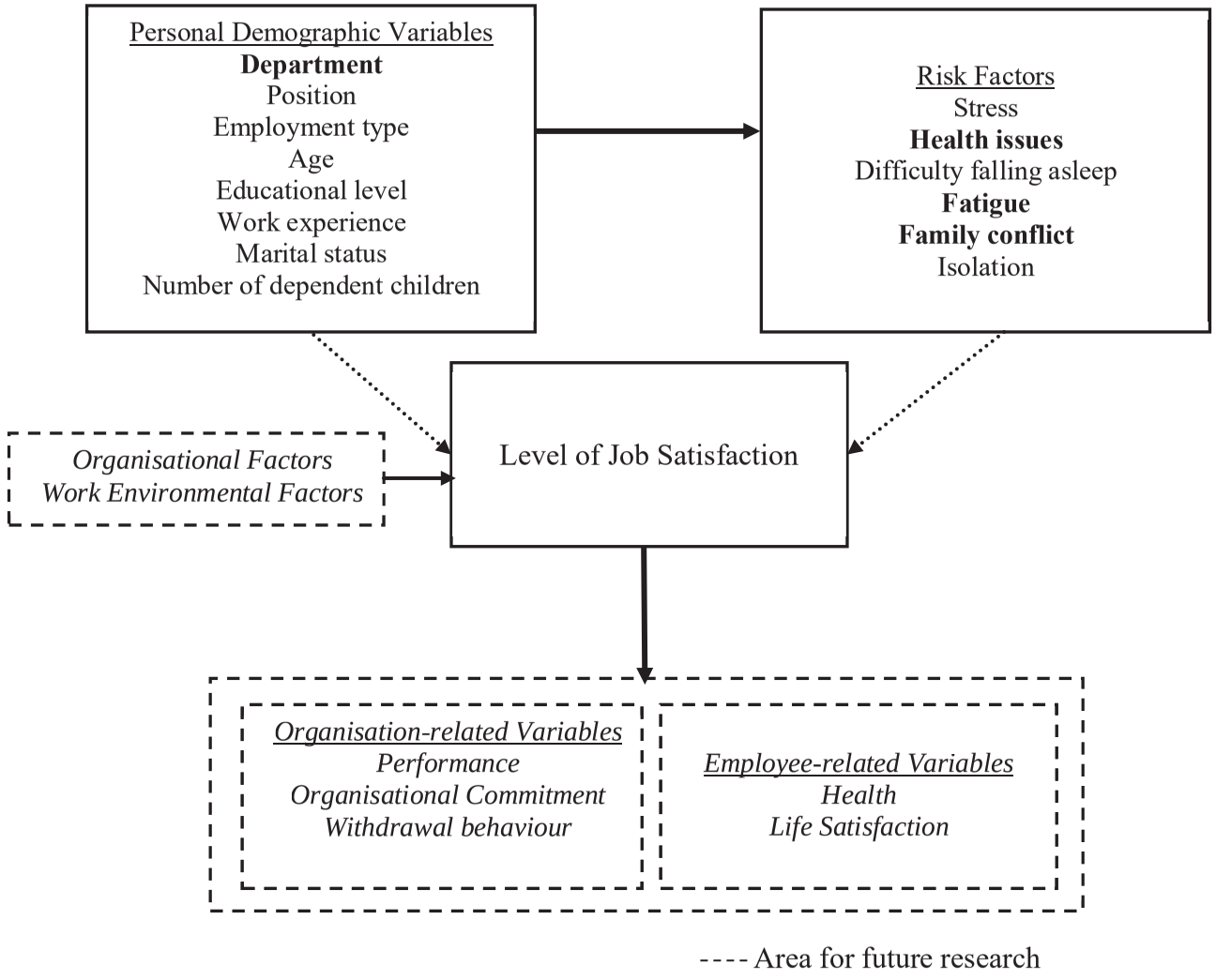

Figure 5. Future Research Framework

5.7 Summary and Final Remarks

This chapter discussed the key findings of the study and their significant implications for theory, practice and policy. The combination of the quantitative and qualitative results did not support the expected relationship between job satisfaction and the personal demographic variables. Only the relationship between job satisfaction and employee department were found to be statistically significant. Moreover, only two departments were found to be statistically significant due to the nature of work and task variety. There was also a weak to moderate inverse relationship between job satisfaction and the risk factors, with job satisfaction being predicted by health issues, fatigue and family conflict. These results suggest that there are theoretical developments that could be made in relation to job satisfaction of shift workers in the aviation sector. The worth of the study is also reflected in part by its delineation of further, fruitful areas of research, particularly in the context of shift work in the aviation sector looking to remain a major form of employment.

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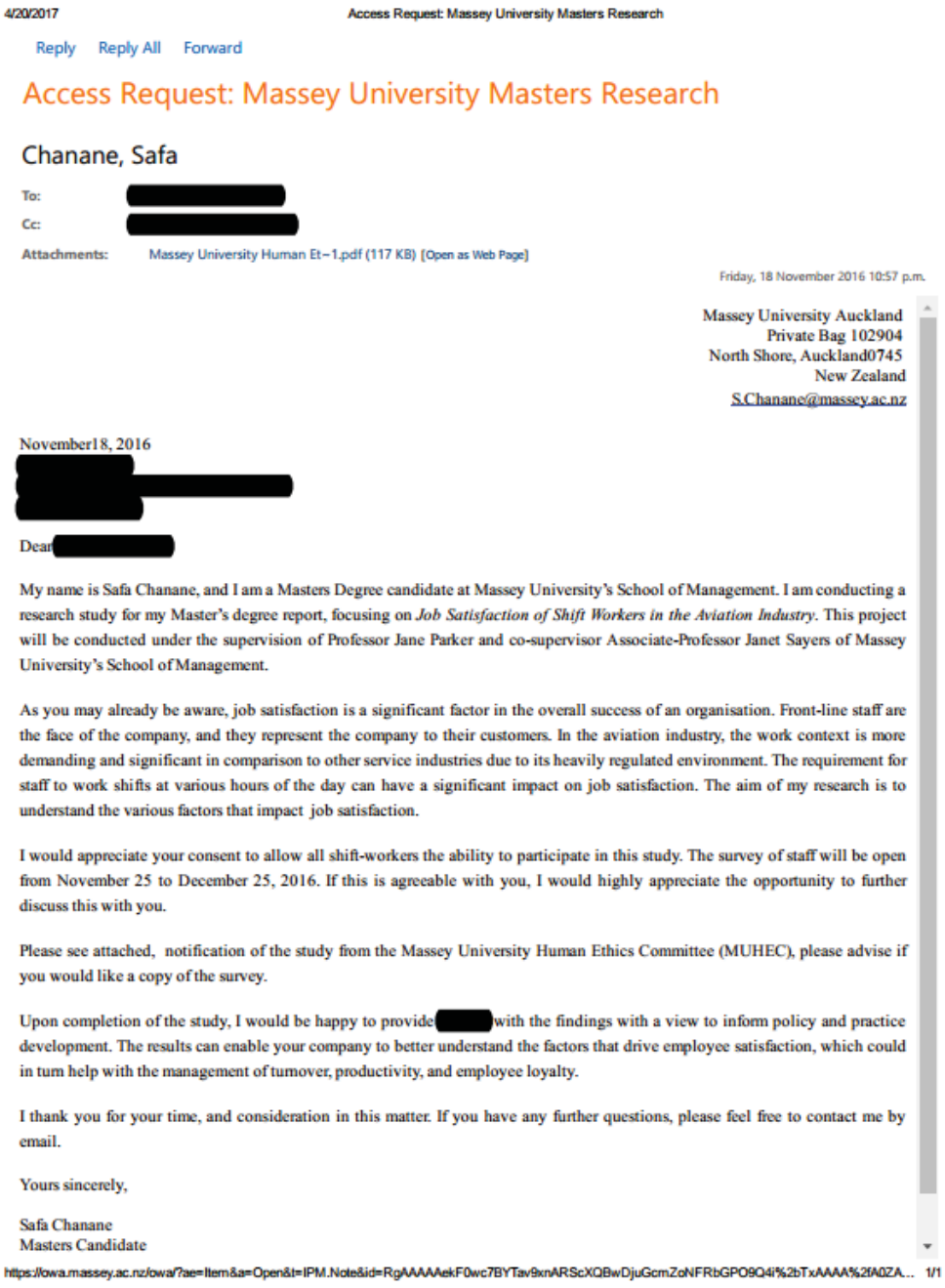
Appendices

Appendix A: Access Letter



4/20/2017 Access Request: Massey University Masters Research

Reply Reply All Forward

Access Request: Massey University Masters Research

Chanane, Safa

To: [redacted]

Cc: [redacted]

Attachments: Massey University Human Et~1.pdf (117 KB) [Open as Web Page]

Friday, 18 November 2016 10:57 p.m.

Massey University Auckland
Private Bag 102904
North Shore, Auckland0745
New Zealand
S.Chanane@massey.ac.nz

November18, 2016

[redacted]

Dear [redacted]

My name is Safa Chanane, and I am a Masters Degree candidate at Massey University's School of Management. I am conducting a research study for my Master's degree report, focusing on *Job Satisfaction of Shift Workers in the Aviation Industry*. This project will be conducted under the supervision of Professor Jane Parker and co-supervisor Associate-Professor Janet Sayers of Massey University's School of Management.

As you may already be aware, job satisfaction is a significant factor in the overall success of an organisation. Front-line staff are the face of the company, and they represent the company to their customers. In the aviation industry, the work context is more demanding and significant in comparison to other service industries due to its heavily regulated environment. The requirement for staff to work shifts at various hours of the day can have a significant impact on job satisfaction. The aim of my research is to understand the various factors that impact job satisfaction.

I would appreciate your consent to allow all shift-workers the ability to participate in this study. The survey of staff will be open from November 25 to December 25, 2016. If this is agreeable with you, I would highly appreciate the opportunity to further discuss this with you.

Please see attached, notification of the study from the Massey University Human Ethics Committee (MUHEC), please advise if you would like a copy of the survey.

Upon completion of the study, I would be happy to provide [redacted] with the findings with a view to inform policy and practice development. The results can enable your company to better understand the factors that drive employee satisfaction, which could in turn help with the management of turnover, productivity, and employee loyalty.

I thank you for your time, and consideration in this matter. If you have any further questions, please feel free to contact me by email.

Yours sincerely,

Safa Chanane
Masters Candidate

https://owa.massey.ac.nz/owa/?ae=Item&a=Open&t=IPM.Note&id=RgAAAAAekF0wc7BYTav9xnARScXQBwDjuGcmZoNFRbGPO9Q4i%2bTxAAAA%2fA0ZA... 1/1

Appendix B: MUHEC Approval Letter

MASSEY UNIVERSITY
TE KUNENGA KI PŪREHUROA
UNIVERSITY OF NEW ZEALAND

Date: 11 June 2016

Dear Safa Chanane

Re: Ethics Notification - **4000016293 - Job satisfaction of shift workers in the aviation industry: An empirical investigation in New Zealand**

Thank you for your notification which you have assessed as Low Risk.

Your project has been recorded in our system which is reported in the Annual Report of the Massey University Human Ethics Committee.

The low risk notification for this project is valid for a maximum of three years.

If situations subsequently occur which cause you to reconsider your ethical analysis, please go to http://rims.massey.ac.nz and register the changes in order that they be assessed as safe to proceed.

Please note that travel undertaken by students must be approved by the supervisor and the relevant Pro Vice-Chancellor and be in accordance with the Policy and Procedures for Course-Related Student Travel Overseas. In addition, the supervisor must advise the University's Insurance Officer.

A reminder to include the following statement on all public documents:
"This project has been evaluated by peer review and judged to be low risk. Consequently, it has not been reviewed by one of the University's Human Ethics Committees. The researcher(s) named in this document are responsible for the ethical conduct of this research.

If you have any concerns about the conduct of this research that you want to raise with someone other than the researcher(s), please contact Dr Brian Finch, Director - Ethics, telephone 06 3569099 ext 86015, email humanethics@massey.ac.nz. "

Please note, if a sponsoring organisation, funding authority or a journal in which you wish to publish requires evidence of committee approval (with an approval number), you will have to complete the application form again, answering "yes" to the publication question to provide more information for one of the University's Human Ethics Committees. You should also note that such an approval can only be provided prior to the commencement of the research.

Yours sincerely

BJ Finch

Research Ethics Office, Research and Enterprise
Massey University, Private Bag 11 222, Palmerston North, 4442, New Zealand T 06 350 5573; 06 350 5575 F 06 355 7973
E humanethics@massey.ac.nz W http://humanethics.massey.ac.nz

Human Ethics Low Risk notification

Dr Brian Finch
Chair. Human Ethics Chairs' Committee and Director (Research Ethics)

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Massey University, Private Bag 11 222, Palmerston North, 4442, New Zealand T 06 350 5573; 06 350 5575 F 06 355 7973
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Appendix C: Survey Invitation

4/20/2017 [redacted]

Survey Invitation

Safa Chanane <qualtrics@massey.ac.nz>

Sat 12/10/2016 9:45 AM

To [redacted]

Dear Employee,

You are invited to participate in a research study, entitled *Job satisfaction of shift workers in the aviation industry: An empirical investigation in New Zealand*. This study is being conducted by Safa Chanane in partial fulfilment towards the requirements for a Masters of Business Studies (MBS) degree at Massey University, New Zealand. As a masters student the project is being conducted under the supervision of Professor Jane Parker and co-supervisor, Associate Professor Janet Sayers at the school of management.

Employee job satisfaction is the main component of the work environment and organizational climate. It has a major impact on the success of an organization. Studies confirm that satisfied employees are more productive, efficient, loyal, and inspire their co-workers to be more diligent and honest. There are many key demographic variables which can influence an employee's job satisfaction, such as; gender, marital status, age, educational level, and years of experience. The purpose of this project is to explore the impact of these key demographic variables on job satisfaction of shift workers in the aviation industry.

It would be highly appreciated if you would be able to spare approximately 5-10 minutes to complete the survey. Your participation in this study is voluntary and you may withdraw at any time. Any information that you provide will be kept confidential and will be destroyed once the research study has been completed. You may decline to answer any particular question in the survey.

Your privacy will be guaranteed by non-disclosure of your identity and aggregation of data results. Only the my supervisors and I will have visibility of the data and viewing of the analytic output. All data will be processed via a statistical software with a password-accessed computer.

The end result of the study will contribute to extend relevant literature, provide clarity on factors that have an impact on employee satisfaction and inform the impact of shift work on individual health and safety.

If you participate before 7 January 2017, you'll be placed into the draw to win a $100 Prezzy card. We have 4 cards to give away each week. Winners will be notified via email.

Follow this link to the Survey:

Take the survey

Or copy and paste the URL below into your internet browser:
https://massey.au1.qualtrics.com/SE?SID=SV_898bkGMiyFZGBBb&Q_CHL=preview&Preview=Survey

Your participation and time are highly appreciated.
Thank you very much.

https://outlook.live.com/owa/?path=/mail/search/rp 1/2

Please feel free to contact the researcher and/or supervisors if you have any questions about the project.

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C/o Massey University (Albany)
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Statement

This project has been evaluated by peer review and judged to be low risk. Consequently it has not been reviewed by one of the University's Human Ethics Committees. The researcher(s) named in this document are responsible for the ethical conduct of this research.

If you have any concerns about the conduct of this research that you want to raise with someone other than the researcher(s), please contact Dr Brian Finch, Director (Research Ethics), email humanethics@massey.ac.nz.

Appendix D: Online Survey

English

Default Question Block

Survey of job satisfaction of shift workers in the aviation industry

Airports are a significant aspect of the aviation industry; the infrastructure and various facilities it provides for air operators is critical in enabling air operations. Most airports are required to be operational 24 hours a day, 365 days a year. Therefore, employees are required to be on active duty during various hours of the day to meet operational demand. Each employee working in this busy and highly demanding environment contributes in maintaining air operation services. Therefore, the well-being of employees is highly significant to organisations as their job satisfaction levels contribute to the overall success of the organisation. The purpose of this project is to explore the impact of employee characteristics and circumstances on job satisfaction of shift workers.

The Head of [redacted] has kindly agreed for all employees working shift, to take part in the survey. Your involvement would be greatly appreciated.

By taking the survey, you agree to participate in this research. Your privacy will be guaranteed by non-disclosure of your identity and the aggregation of data results. This survey will take 5-10 minutes to complete. Completion and return of the questionnaire implies consent but you have the option to decline to answer any particular question. All surveys completed will enter a weekly prize draw for a $100 prezzy card.

Please feel free to contact me and/or my Masters supervisors if you have any questions about the project.

Yours sincerely,
Safa Chanane
C/o Massey University (Albany)

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Jane Parker
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Demographics

Survey of job satisfaction of shift workers in the aviation industry

Which department do you work for?

- O Ramp and cleaning services
- O Baggage services
- O Airport / passengers services
- O Operations performance
- O Other

What is your employment type?

- O Full-time
- O Part-time

Which position do you hold?

- O Manager/support manager/ team manager/ team leader
- O Team member

What is your age?

- O 15 – 24 years
- O 25 – 34 years

- ○ 35 – 44 years
- ○ 45 – 54 years
- ○ 55 – 64 years
- ○ 65 years or older

What is your highest qualification?

- ○ No qualification
- ○ High school qualification
- ○ Diploma/ certificate
- ○ Bachelors degree
- ○ Masters degree or above

For how long have you been working in your current position?

- ○ 0 – 5 years
- ○ 6 – 10 years
- ○ 11 – 15 years
- ○ 16 – 20 years
- ○ More than 20 years

What is your current marital status?

- ○ Married / in a relationship
- ○ Widowed
- ○ Divorced / separated
- ○ Never married
- ○ Other

What is your gender?

- ○ Male
- ○ Female
- ○ Undisclosed

How many dependent children (0-16) do you have?

How satisfied do you think your employees are with working shifts?
(where 1 star= extremely dissatisfied, 3 stars= moderately satisfied, and 5 stars= extremely satisfied)

Please explain your response:

How do you think your managers perceive your satisfaction with working shifts?
(where 1 star= extremely dissatisfied, 3 stars= moderately satisfied, and 5 stars= extremely satisfied)

Please explain your response:

Job Satisfaction

My job is usually interesting enough to keep me from getting bored. (Please tick one response box).

Strongly agree | Agree | Neither agree nor disagree | Disagree | Strongly disagree

It seems that my colleagues in my workplace are more interested in their jobs than I am in mine. (Please tick one response box).

Strongly agree | Agree | Neither agree nor disagree | Disagree | Strongly disagree

I consider my job to be rather unpleasant. (Please tick one response box).

Strongly agree | Agree | Neither agree nor disagree | Disagree | Strongly disagree

Please explain your response:

I enjoy work more than my leisure time. (Please tick one response box).

Strongly agree | Agree | Neither agree nor disagree | Disagree | Strongly disagree

I am often bored with my job. (Please tick one response box).

Strongly agree | Agree | Neither agree nor disagree | Disagree | Strongly disagree

I feel very satisfied with shift work (Please tick one response box).

Strongly agree | Agree | Neither agree nor disagree | Disagree | Strongly disagree

Most of the time, I have to force myself to go to work. (Please tick one response box).

Strongly agree | Agree | Neither agree nor disagree | Disagree | Strongly disagree

I am satisfied with my job for the time being. (Please tick one response box).

Strongly agree | Agree | Neither agree nor disagree | Disagree | Strongly disagree

O	O	O	O	O

I feel that my job is no more interesting than other jobs in this organisation that I could hold. (Please tick one response box).

Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
O	O	O	O	O

I dislike my work. (Please tick one response box).

Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
O	O	O	O	O

Please explain your response:

I feel that I am happier with my work than most other colleagues in this organisation. (Please tick one response box).

Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
O	O	O	O	O

Most days, I am enthusiastic about my work. (Please tick one response box).

Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
O	O	O	O	O

Each day at work seems like it will never end. (Please tick one response box).

Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
O	O	O	O	O

In this organisation, I like my job better than others doing the same job seem to like theirs. (Please tick one response box).

Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
O	O	O	O	O

My job is uninteresting. (Please tick one response box).

Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree

Please explain your response:

I find real enjoyment in my work. (Please tick one response box).

Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
O	O	O	O	O

I am disappointed that I ever took this job. (Please tick one response box).

Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
O	O	O	O	O

Please explain your response:

Shift work

I work shifts because: (Rank the following from 1 (highest) to 9 (lowest) according to your preference.)

- [ ] Flexibility in working hours
- [ ] Higher income
- [ ] No supervision from managers

- [ ] Having freedom in working practice and pace
- [ ] Training opportunities (have time to make the most of training offered)
- [ ] Having the option to do further study
- [ ] It is the nature of the job
- [ ] It was the only job available
- [ ] More convenient for my domestic responsibilities

How often do you experience the following:

	Always	Most of the time	Sometimes	Rarely	Never
Difficulty in falling asleep	O	O	O	O	O
Health issues	O	O	O	O	O
Stress	O	O	O	O	O
Fatigue	O	O	O	O	O
Family conflicts	O	O	O	O	O
Isolation	O	O	O	O	O

The overall benefits of working shifts outweigh the drawbacks. (Please tick one response box).

Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
O	O	O	O	O

Is there anything that you would like to add about shift work, particularly in relation to your sense of job satisfaction?

Would you like to receive a copy of the aggregate results? (Please tick one response box).

- O Yes
- O No

Thank you very much for completing this survey and helping us to develop our understanding of shift work and job satisfaction.

You are now in the draw to win a $100 Prezzy card.

As mentioned earlier, your responses will remain confidential and you will not be identified in any research outputs.

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Appendix E: Email from Manager to Employees

4/20/2017 Impacts of Shift Work on Job Satisfaction - Online Survey.

Reply Reply All Forward

Impacts of Shift Work on Job Satisfaction - Online Survey.

[redacted]

To: !Everyone at[redacted]

Cc: [redacted] Chanane, Safa

Tuesday, 6 December 2016 4:51 p.m.

Hello Team,

Massey University are conducting research into the key factors that impact job satisfaction among shift workers in the Aviation Industry, and [redacted] have agreed to participate in this research using our [redacted] as the survey grounds.

This week you will be emailed a personal link to an online survey to your [redacted] email address which allow you to provide feedback on how shift work impacts on job satisfaction. The survey is completely voluntary; will take about 10minutes to complete and will be open for participation until Sunday December 25th.

It is important to note that in taking part in the survey, your privacy will be completely guaranteed, with no one at [redacted] seeing any of your responses as your responses will be kept confidential.

The company will receive an overall report on the key findings of the research however, which will help us plan health and wellbeing initiatives in the future with a view to improve our culture and increase job satisfaction.

Everyone that chooses to complete the survey will also be placed into a weekly draw to win 1 of 4 Prezzie Cards to the value of $100. If you have any questions about the research, you are able to contact [redacted] Wellbeing Consultant, [redacted] on [redacted] o[redacted] or the researcher Safa Chanane (Massey University) at S.Chanane@massey.ac.nz.

Thanks for participating in what can only be a great opportunity to explore in improving job satisfaction in our shift based environment.

Take care,

[redacted]

[redacted]

Good planets are hard to find - please think of the environment before you print this email.

https://owa.massey.ac.nz/owa/?ae=Item&a=Open&t=IPM.Note&id=RgAAAAAekF0wc7BYTav9xnARScXQBwDjuGcmZoNFRbGPO9Q4i%2bTxAAAA%2fA0XA... 1/1

Appendix F: Survey Diagnostics

Table A1

Early and Late Responses

Variable		%		n	x^2	df	p
		Early	Late				
Gender	Male	72.3	27	144	0.486	2	0.784
	Female	71	28.8	132			
Age	15 – 24 years	88.5	11.5	26	7.188	5	0.207
	25 – 34 years	71.8	28.2	78			
	35 – 44 years	66.2	33.8	71			
	45 – 54 years	67.2	32.8	58			
	55 – 64 years	17.6	82.4	34			
	65 years or older	70	30	10			
Employment Type	Full-time	71.6	28.4	102	0.032	1	0.857
	Part-time	72.6	27.4	175			
Level of Education	No qualification	75.0	25.0	12	2.077	4	0.722
	High school qualification	68.6	31.4	105			
	Diploma/certificate	72.0	28.0	100			
	Bachelors degree	77.4	22.6	53			
	Master degree or above	85.7	14.3	7			

Table A2

Harman's Single Factor Test (Total Variance Explained)

	Initial Eigenvalues			Extraction Sums of Squared Loadings		
Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
Department	2.437	13.540	13.540	2.437	13.540	13.540
Employment type	2.175	12.081	25.621			
Position	1.690	9.387	35.008			
Age	1.577	8.763	43.771			
Level of education	1.437	7.982	51.753			
Work experience	1.277	7.095	58.847			
Marital status	1.153	6.404	65.251			
Gender	.883	4.905	70.156			
Dependent children	.826	4.589	74.744			
Flexibility in working hours	.820	4.557	79.302			
Higher income	.732	4.068	83.370			
No supervision from managers	.651	3.618	86.988			
Having freedom in working practice and pace	.609	3.384	90.372			
Training opportunities	.539	2.995	93.367			
Having the option to do further study	.524	2.913	96.280			
It is the nature of the job	.423	2.349	98.629			
It was the only job available	.247	1.371	100.000			
More convenient	2.754E-16	1.530E-15	100.000			

Extraction Method: Principal Component Analysis.

Table A3

Descriptive Statistics of Overall Job Satisfaction Score

			Statistic	Std. Error
Job Satisfaction	Mean		63.09	.463
	95% Confidence	Lower Bound	62.18	
	Interval for Mean	Upper Bound	64.00	
	5% Trimmed Mean		63.37	
	Median		64.00	
	Variance		59.541	
	Std. Deviation		7.716	
	Minimum		33	
	Maximum		80	
	Range		47	
	Interquartile Range		10	
	Skewness		-.638	.146
	Kurtosis		.553	.291

Table A4

Test of Normality for Job Satisfaction

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Job Satisfaction	.097	278	.000	.974	278	.000

a. Lilliefors Significance Correction

Table A5

Test of Homogeneity of Variances (Levene's Test of Equality of Error Variances[a])

Dependent Variable: Job Satisfaction			
F	df1	df2	Sig.
.895	251	26	.678

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Design: Intercept + Department + EmploymentType + Position + Age + LevelofEducation + WorkExperience + MaritalStatus + Gender + DependentChildren

Table A6

Multicollinearity Table

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95% Confidence Interval for B		Collinearity Statistics	
		B	Std. Error	Beta			Lower Bound	Upper Bound	Tolerance	VIF
1	(Constant)	77.100	1.713		44.997	.000	73.726	80.473		
	Difficulty Falling Asleep	-.786	.469	-.106	-1.675	.095	-1.711	.138	.713	1.402
	Health Issues	-1.655	.577	-.190	-2.867	.004	-2.791	-.518	.656	1.523
	Stress	-.271	.626	-.031	-.434	.665	-1.503	.960	.574	1.741
	Fatigue	-1.219	.574	-.153	-2.123	.035	-2.349	-.088	.557	1.796
	Family Conflict	-1.366	.535	-.171	-2.555	.011	-2.419	-.313	.644	1.553
	Isolation	.170	.544	.021	.312	.755	-.902	1.241	.619	1.615

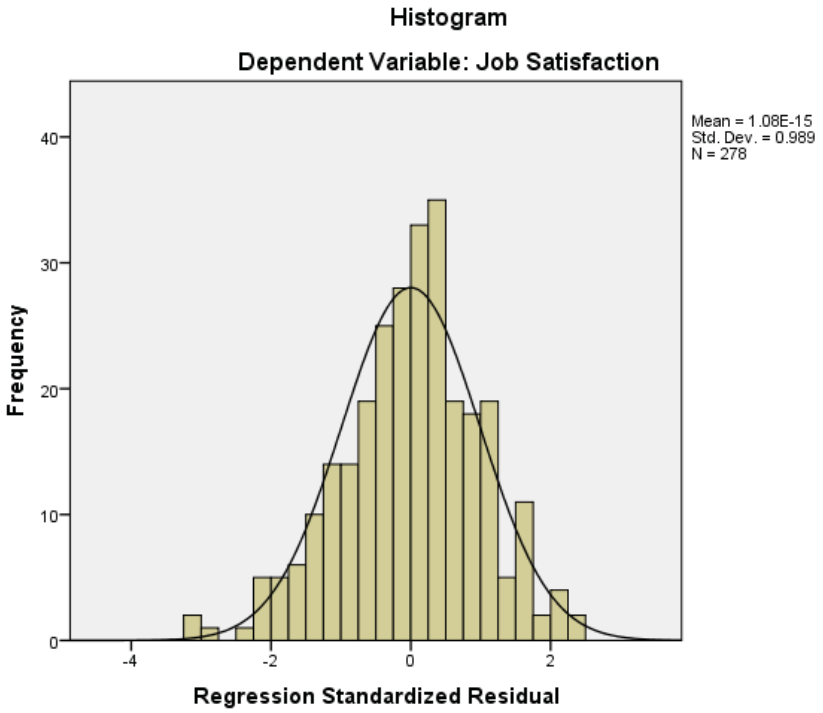

Figure A1. Residuals Histogram

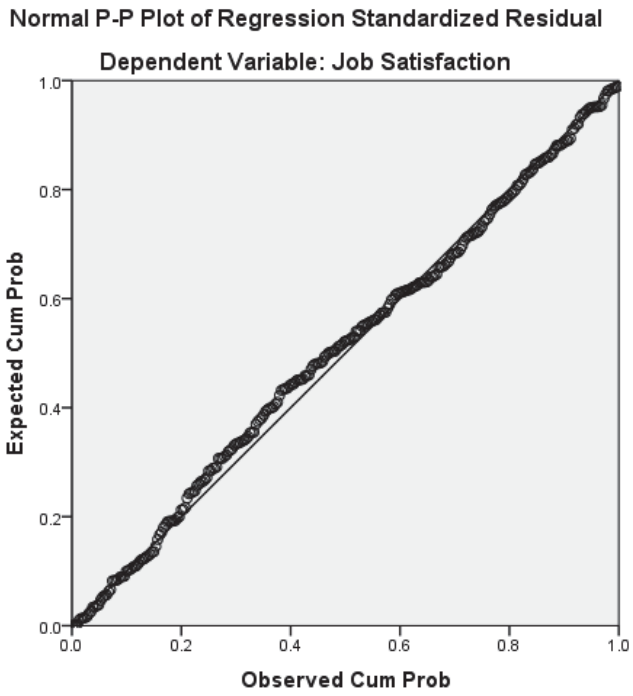

Figure A2. P-P Plot of Regression Standardized Residual