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Perceived work-life balance for Air Traffic Control shift workers in South African aviation

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768378

A research report submitted to the Faculty of Commerce, Law and Management, University of the Witwatersrand, in partial fulfilment of the requirements for the degree of Master of Business Administration

Johannesburg, 2015

TITLE PAGE

ABSTRACT

This study investigates what work-life balance means in South Africa among shift workers in the aviation industry. The work environment of Air Traffic Controllers (ATCs) presents specific challenges that affect work-life balance. These include shift work, mental demands and the stressful nature of the job. The study examines the relationship between shift work and work-life balance. Additionally, it reveals how shift work affects satisfaction, work conflict and impacts on stress.

Qualitative research method was used to understand work-life balance for shift working ATCs. A case study method was used and semi structured interviews were conducted with ATCs from Air Traffic and Navigation Services (ATNS) at OR Tambo Airport. The collected data was analysed using common themes among participants. The results indicate that ATCs had challenges in adapting to a sequence of an afternoon shift followed by a morning shift or a night shift causing poor sleep. ATCs reported experiencing better work-life balance during the week due to flexibility of time. Shift work hours enabled them to engage in activities such as running errands, studying and hobbies. However, during weekends and holidays work conflict occurred. ATCs have to work when they would rather spend time on family activities such as attending funerals and other family gatherings. Shift work interrupts routine that prevents ATCs from living healthier lifestyles as well as contributing to illness and stress. Those participants who utilised support from live-in helpers experienced better work-life balance. Mothers with limited support experienced work-life conflict and increased stress resulting from family responsibilities. Participants experienced satisfaction, although the nature of the job is stressful and challenging.

Organisations need to manage work-life balance by eliminating challenges in shift schedules and supporting healthy lifestyles of employees. Women's needs should be accommodated by employers through support from their managers, policies and programs. Employees and employers need to support practices that improve work-life balance and reduce work-life conflict.

DECLARATION

I, _____, declare that this research report is my own work except as indicated in the references and acknowledgements. It is submitted in partial fulfilment of the requirements for the degree of Master of Business Administration in the University of the Witwatersrand, Johannesburg. It has not been submitted before for any degree or examination in this or any other university.

Nokwando Msibi

Signed at ……

On the …….. day of …… 2015

DEDICATION

I would like to dedicate my research to my friends and family who supported me on this journey.

ACKNOWLEDGEMENTS

I am thankful to the organisation Air Traffic and Navigation Services (ATNS) for opening up their company and permitting me to interview Air Traffic Controllers (ATCs). My appreciation further goes out to the Aviation Training Academy (ATA) personnel for their support and allowing me to use their venues to conduct my interviews. I would like to extend my sincere gratitude to all the Air Traffic Controllers (ATCs) who participated in my research study. Their experiences of work-life balance have been valuable in contributing to my findings of the study.

I am grateful to my friends and family for the love and support they have shown during the course of my research. Most importantly, my appreciation goes to my supervisor Dr Zanele Ndaba for her guidance and continuous feedback which was very useful in enabling me to complete my research.

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1. CHAPTER 1: INTRODUCTION

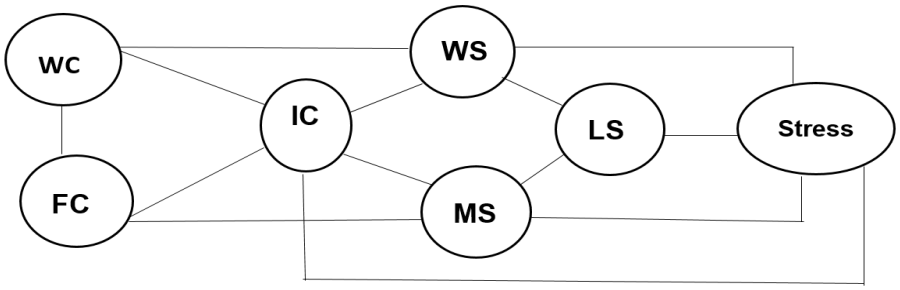
1.1 Purpose of the study

The purpose of this research is to assess work-life balance amongst shift working Air Traffic Controllers (ATCs) in the aviation environment. The study will draw on the experiences of employees in a bid to identify the nature of the relationship between work life and non-work life of shift workers. Organisations with shift work may gain awareness of the impact that nonstandard work schedules have on employees and their performance at work.

In this chapter I will introduce the study with a discussion of the purpose of the study and establish the context of the study. The problem statement will follow containing the main problem as well as the sub-problems which the study attempts to uncover the answers to. The significance of conducting the research and the delimitations of the study will also be discussed. This chapter will be concluded with the assumptions made in the conduct of this research.

Working shifts has been found to reduce the level of family satisfaction specifically shifts that run into the evening (Grosswald, 2004). The research will be based on a model designed by Kopelman (1983), replicated by Higgins, Duxbury, and Irving (1992) in a study that showed high construct validity, and tested by Chiu, Man, and Thayer (1998). This model focuses on the relationship between work conflict (WC) and family conflict (FC) as predictors of inter-role conflict (IC) which consequently is the predictor of work satisfaction (WS), marital satisfaction (MS), life satisfaction (LS) and all these as predictors of stress. Traditionally work-life balance is identified as the absence of conflict by Greenhaus and Beutell (1985) and research by Allen, Herst, Bruck, and Sutton (2000) identifies work-life balance as associated with marital and family satisfaction. Refer to figure 1, the model of Work-family conflict by Kopelman

(1983) which identifies the interrelatedness of these constructs that will be used in the study.



Key: WC= Work conflict; **FC**= Family conflict; **IC**= Inter-role conflict;
WS= Work satisfaction; **MS**= Marital satisfaction; **LS**= Life satisfaction

Figure 1: Work-family conflict by Kopelman (1983)

1.2 Context of the study

The context of this research will begin by describing what work-life balance means in the South African work environment. This will be followed by a depiction of the aviation environment and the explanation of the relevance of work-life balance. Satisfaction with life or work is discussed as the effect of the presence or absence of work-life balance for those employees who work non-standard hours in the form of shifts.

1.2.1 South African environment

The environment where work-life balance is explored may have distinctive characteristics which may influence how it transpires. These characteristics may include the culture and beliefs of the people and the nature of labour. Mageni and Slabbert (2005) reported that work-life balance awareness in South Africa has resulted in the adoption of foreign policy ideas which have not benefited organisations. The work-life balance concept in South Africa is still unclear. Van

Niekerk & Douglus, (2003), in Mageni & Slabbert (2005), found that a few dynamic organisations, acknowledged work-life balance in the early nineties. Additionally, Bird (2003, cited in Mageni & Slabbert 2005) identified that many organisations subscribe to the notion that work and family are separate domains and family issues are the responsibility of employees. Ngambi (2001) suggested that work-life balance is a luxury for many South African employees. This is due to the economic conditions related to high unemployment and retrenchment levels. Those who are employed are grateful and show little concern for work-life balance.

Kopelman (1983) designed a model describing work-life conflict which was later used in other studies. Most of these studies were conducted in a Western society, Chiu et al. (1998) replicated the study in an Asia, Hong Kong with results influenced by the Asian culture of collectivism. Crompton and Lyonette (2006) conducted research on work-life balance in Europe which identified different experiences between countries based on sex, social aspects and division of labour. Mageni and Slabbert (2005) suggested that international studies and models of work-life balance do not fit in to the South Africa business environment. This study may bring out differences that reflect a unique South African perspective of work-life balance for shift workers in aviation.

1.2.2 The aviation environment

Work-life balance may be specific to an industry because each industry has different challenges built in it. Shift work studies have shown that those working in a safety orientated environment have a reduced quality of work performance which may lead to a fatal incident occurring (Westfall-Lake, 2000). Working 24 hour shifts increases the potential for poor safety and performance at work due to shift work (Thompson et al., 2006).

The human factor is the role contribution in aviation operations that involves a human performing tasks together with a machine, systematic or any other element (Mindell & Mirmalek, 2011). Westfall-Lake (2000) observed that error in human judgement or behaviour is a common cause of many catastrophic accidents that have taken many lives. Dinges (1995) observed shift work resulting in poor sleep patterns lead to fatigue and increase probability of error.

Hilburn (2004) illustrated that the job of an Air Traffic Controller (ATC) has important challenges of workload and cognitive complexity in the form of decision making, situational awareness and memory. Shift work effects can decrease mental wellbeing and the capability to function optimally (Folkard & Tucker, 2003). This may have detrimental effects for safety.

1.2.3 The air traffic control environment

The discussion of the ATC environment describes the nature of the job and the challenges faced by ATC. The dynamics present in their work environment may have an effect in the way they experience work-life balance. Aircraft accident investigations have revealed human error is a critical factor (Broadribb, 2012). Broadribb (2012) continued to equate the cause of accidents as a management failure to design, train and identify hazards and safety obstacles resulting in a poor safety culture.

With the increase in air travel, workload has increased and has become a key issue in air traffic control (Langan-Fox, Canty, & Sankey, 2009). Work load is identified to be problematic in work-life balance related to work-life conflict (Sturges & Guest, 2004). Endsley (1995) identified situational awareness in three levels; being conscious of a changing environment, understanding and creating meaningful information as well as anticipation of events that will follow. When situational awareness is lost poor problem detection and problem solving

occurs followed by incorrect action which may lead to accidents (Stanton, Chambers, & Piggott, 2001). Fatigue as a result of shift work may reduce the ability to accurately understand the environment and respond promptly and appropriately. The experience of stress by ATC from their jobs can have an effect on the satisfaction they have with their lives. Gander (2001) observed the stressful nature of the job of an ATC with safety as the most important aspect. Carrying life threating responsibilities on a day-to-day basis in a stressful work environment makes it necessary for ATCs to be physically and mentally fit.

1.2.4 Implications for aviation organisations

The presence or absence of work-life balance may have implications on other aspects work. Beauregard and Henry (2009) suggest work-life balance practices in organisations that are effective enhance the recruitment, retention and performance capability of organisations. Wayne, Randel, and Stevens (2006) observed an organisation with supportive managers where employees reported feelings of enrichment, increased commitment and performance to work as well as reduced turnover. Forsyth and Polzer-Debruyne (2007) identified that organisations may save on the financial costs of employee turnover when employees perceive organisational initiatives for work-life balance as supportive.

Any effects from shift work or from the work environment that are harmful can affect the level of safety for ATCs. Broadribb (2012) identified safety as most important in the aviation industry and the culture of organisations. Refer to illustration of figure 2. Shappel and Wiegmann (2000) identified two factors: organisational such as work policies and human such as fatigue, that influence an incident or accident. Where protective barriers from work structures have loop holes, events creep through to result in an incident or accident. Shift work policies that are poorly structured may cause fatigue and create these

undesired holes in organisations. An ATC with an individual factor of fatigue will have decreased mental capacity to control resulting in poor performance causing an accident. This is represented in figure 2, commonly known as the "Swiss cheese model" (Shappel & Wiegmann, 2000).

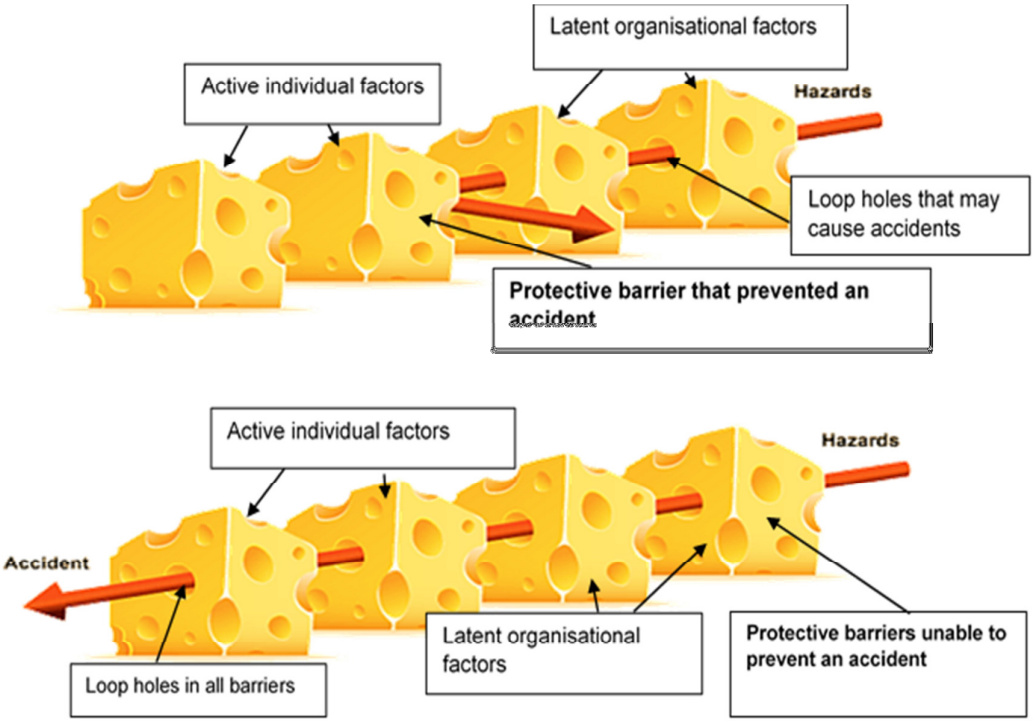


Figure 2: Swiss cheese model

1.2.5 Satisfaction

The discussion on satisfaction of employees with their lives identifies those items that affect their happiness. Satisfaction may indicate whether they are happy with the interaction between their work and family. Satisfaction is subjective to individuals and can be described as wellbeing and happiness (Romero, 2014). Arslan and Acar (2013) explained that life satisfaction is specific to individuals. It is, "a person's general attitude towards life" (Arslan and Acar, 2013, p. 282). Life satisfaction identifies the entire life namely family,

freedom, stability, social status, marriage, relationships, control over ones' own life, physical condition, mental condition and monetary earnings have been identified as items that affect life satisfaction. Shift work occurring at irregular hours may impact on workers family life satisfaction and increase stress.

1.2.6 Shift worker

Being a shift worker may bring about challenges as well as benefits in employees lives. These challenges may reduce work-life balance and benefits may improve work-life balance. Barnett and Hall (2007) identified shift workers as those employees who work nonstandard hours. These hours contain weekends, holidays, rotation shifts, double shifts and night shift. Dunifon, Kalil, Crosby, and Su (2013) stipulated that shift workers who work non-standard hours and mothers who work night shifts in particular, are able to spend more day time with their children. The quality of time they spend is questionable because they are tired from working at night. Nonstandard shift rotations also make it difficult to establish family routines for activities. There are advantages and disadvantages to working nonstandard shifts which may affect employees' personal lives.

1.2.7 Work-family balance

A clarification of the meaning of the balance between work life and family life will be discussed here. This will assist with the understanding of the concept work-life balance. Greenhaus and Beutell (1985, p.77, in Carlson, Grzywacz, and Zivnuska, et al., 2009) defined work-life balance as the, "absence of work-family conflict, a form of inter-role conflict in the role pressures from work and family domains are mutually incompatible in some respect." A more current view which the study will also be using identifies it as the individuals' personal

feelings about the impact of work on their personal and family life (Carlson, Grzywacz, & Zivnuska, 2009).

1.2.8 Work-life conflict

The description of work-life conflict is relevant because it describes how poor work-life balance occurs. Grzywacz and Carlson, (2007, cited in Carlson, Grzywacz, and Zivnuska, 2009) identified that when a conflict situation between the work role and family role occurs, the term work-family conflict is used. Where there is no conflict the term work-family balance is used. This has resulted in the use of the terms work-family conflict and work-family balance interchangeably. Ernst Kossek and Ozeki (1998) established that work-life conflict is the interaction of the work role and the family role that results in negative spill over from work to family. The attitudes and behaviours in one role spill over to the other. Ernst Kossek and Ozeki (1998) pointed out that most research has found that there is a negative relationship between work and non-work life as well as conflict and family life satisfaction.

Adams, King, and King (1996) discussed that conflict occurs when the requirement to participate in one role is impacted on by the requirements to participate in another role. This conflict can have an effect on work or family life satisfaction. Conflict may be evident in the form of stress in the work role spilling over to the home. This may also be visible through time schedule pressures and inability to participate in work or family activities. Dilworth (2004) added that spill over takes place from family-to-work as well as from work-to-family and can be positive or negative. In this study, the focus is on work-to-family spill over where outcomes of shift work will be evaluated and the impact they have on Air Traffic Controllers (ATCs) lives. Ahmad, Fakhr, and Ahmed (2011) have identified that the spill over for women and men is different. This is due to the division of family responsibilities in a traditional family setup where women

perform more household activities including child care. The study aims to describe work-life balance in aviation for ATC shift workers. The model by Kopelman (1983) is used which identifies relationships between work and family conflict as well as satisfaction and stress.

1.3 Problem statement

The main problem provides an overview of the aim of the research study. In order to address the main problem, sub-problems are used. These sub-problems will provide a guide in the exploration of the main problem.

1.3.1 Main problem

To identify the effects of shift work on work-life balance and explore how shift work may interact with employee satisfaction and stress

Sub-problems

Sub problem 1: To distinguish the role of shift work on satisfaction with life and work

Sub problem 2: To explore how shift work conflict may affect employee stress

1.4 Significance of the study

The study attempts to describe the importance of the effect of shift work on employee family life and personal life. This will be done with the use of the related constructs identified in the Work-family conflict model of Kopelman (1983). Dunifon et al. (2013) identified that the relationship between work and family life satisfaction for shift workers who work nonstandard hours may be

affected in a positive or negative manner. Bhowon (2013) discussed a study that stipulated that the results of work-family conflict has harmful consequences for both employees and employers.

The roles employees participate in may have a positive or negative effect in their lives. Bhowon (2013) stipulated that people have multiple roles in their lives, which give meaning to their lives, purpose and identity of who they are. Cinamon and Rich (2002) identified that when performing one role makes it difficult to perform another, conflict may result. Women who are family orientated tend to experience increased work-family conflict.

The effect of night shift on employees may have harmful outcomes. Flo et al. (2012) noted that night shift work often has negative consequences on health based on gender, age and personality characteristics. Shift Work Disorder (SWD) is experienced by employees who work non-standard work schedules that cause insomnia, which is a difficulty in falling asleep or sleepiness. Employers and employees need to be aware of SWD which may have consequences on work and health.

Insufficient rest from shift work can reduce the performance capability of employees due to tiredness. Broadribb (2012) conveyed that fatigue effects situational awareness and is a cause of human error. The study may show how reduced situational awareness may occur as a result of shift work and may affect the quality of job performance which may threaten safety in aviation.

Differences in the South African society may be present in the form of different experiences of work-life balance. Mageni and Slabbert (2005) observed that work-life balance in South Africa has a different meaning to different organisations and employees. The study seeks to identify how work-life balance

manifests in South African aviation with reference to the air traffic control industry.

Carlson et al. (2009) identified that organisations should support employees in the quest to find a balance between work and family. Conflict reduces work satisfaction and is related to poor work performance. The study may inform organisations of the effect of shift work on employees. It can influence the design of work policies that can minimize work-family conflict and promote work-life balance.

1.5 Delimitations of the study

The research will explore the relationship between shift work and family life satisfaction only for workers in the aviation sector. Participants will come from the Air Traffic and Navigation Services (ATNS) company. The study will be conducted in the aviation operations industry only. It will include only participants who are employed as Air Traffic Controllers (ATCs) who engage in shift work at ATNS. A convenience sample will be drawn from ATCs based at OR Tambo Airport in Johannesburg, South Africa. Workers who do not work shifts may require a different study to assess work-life balance. Differences in family and social factors may play a role in influencing individual responses to the research results.

The study requires a measure of work-life balance which may be subjective to each individual. The same event may be experienced by different individuals who may provide different interpretation of balance.

1.6 Definition of terms

Work-family balance - The evaluation by the individual of the satisfaction they obtain from both roles of work and family life. Work-life balance is experienced when there is as an absence of work-family conflict in the form of inter-role conflict.

Work-family conflict – Inability to manage the demands of work domain which make it difficult to meet demands in the family domain.

Spill over – Positive or negative emotions, attitudes and behaviours from one role overflow and are transferred to another role.

Shift work – Non-standard working hours including work at night or early morning and extended or compressed number of working hours.

Shift Work Disorder (SWD) – Insomnia or sleepiness as a result of an individual's work schedule.

Air Traffic Control (ATC) – A job that involves the safe planning, coordination and control of air traffic around the airport or in the air.

Aviation - All characteristics and activities of airlines, air transport, activities of air transport operators, ground service personnel, air traffic control and other supporting activities.

Human factor – The role a human plays in aviation operations environment that interacts with other elements such as machines and systems.

Situational awareness – Correct assessment and measurement of a dynamic environment, being conscious of your surroundings, while paying attention to your immediate task, thinking, making decisions and acting on all the information.

Cognitive complexity – Combination of factors affecting an Air Traffic Controller in their job which are; air traffic density, perception, planning, decision making and factors specific to the individual such as experience, training, psychological, emotional and fatigue.

1.7 Assumptions

Family life satisfaction framework addresses all aspects, roles, feelings and emotions in the life of an employee that are effected by work. This is a positive or negative result when an employee assesses their overall life.

The individuals who take part in the study understand the concepts of work, family and satisfaction. In understanding these concepts they will be able to provide relevant feedback from their personal experiences.

Those responding to the study will do so honestly. They will share information that is true about them. Their experiences in shift work will inform the research.

Employees have a genuine desire to be successful. They want to achieve good results from their work role. They also want to excel in other roles they participate in that are not work related.

Work is not the single most important aspect of the participant's life. They seek to participate in other roles outside of work. They value all the roles they participate in as much as their work role as ATCs.

2 CHAPTER 2: LITERATURE REVIEW

2.1 Introduction

The literature overview that will follow is the basis for the study of work-life balance for shift workers. The constructs identified as relevant for this study are not exhaustive. The ideas and topics that have been integrated will serve as a foundation to the research and explore work-life balance in the South African aviation context for shift workers. These concepts follow the Work-family conflict model, which was first designed by Kopelman (1983), used in a quantitative approach. In this study these concepts will be applied in a qualitative approach in order to determine the dynamics that exist for Air Traffic Controllers (ATCs) working shifts in South Africa.

In this chapter the discussion introduces the concepts that will be used to describe work-life balance. A background discussion will include the evolution of the work force together with the evolution of work and how those changes may impact on work-life balance. Lastly the background discussion will focus on the aviation work force.

The Work-family conflict model that provides the concepts that will be discussed is relevant because in it Kopelman (1983) suggests that the work role and family role interact together. The interaction results in positive or negative spill over outcomes which then affect satisfaction in life and stress. Grzywacz et al. (2002) proposed that work may compete with family and produce spill over from one role to the other or vice versa. For ATC the work role that involves employment in the form of shift work may spill over into family roles in a negative way and may cause work-family conflict. This may occur because the traditional family time has been exchanged for work time and vice versa. Evenings, weekends and holidays have been exchanged for work time, and the

work time is now available for family. On the other hand, positive spill over may take place due to shift work schedules where employees with children may find time to provide care during the day as opposed to being at work. In this case, more time is available to engage in activities outside of work during the day. Spill over, negatively or positively, affects the quality of life of the individual and impacts on life satisfaction. When spill over is negative, stress may be experienced.

2.2 Definition of topic or background discussion.

The background discussion sets the scene for the study. It begins with the evolution of the workforce and explores how employees have changed over time. It will be followed by a focus on aviation employees and how work has evolved.

2.2.1 Evolution of the workforce

The changes in the nature of the hours of work may have an effect on family time that is available. More or less family time availability can improve the quality of life or have an adverse effect for employees. Leach and Butterworth (2012) identified that work in the past was conducted strictly from nine to five, from Monday to Friday in the form of permanent employment. The demands of work on employees changed which resulted in changes of the workforce. These changes have impacted work and resulted in flexible work schedules. Nonstandard work, longer hours, temporary work, contracted work and many more forms of employment exist. Industrialisation and manufacturing jobs dominated by men changed to more service type jobs allowing more women to step into paid employment (Crompton & Lyonette, 2006).

The movement towards different working hours can play a role in improving the ability to meet family demands. Nonstandard work hours may have increased flexibility of time that employees can use to meet family demands. Tausig and Fenwick (2001) pointed out that research has surfaced showing that in order to achieve better work-family balance, some employees have opted for nonstandard work schedules. They use alternative work schedules to meet the demands of work and non-work life. These include flexible work schedules, part time work, shift work and rotation. 50 per cent of women and 33 per cent of men that have opted for nonstandard schedules indicate that the main reasons are linked to meeting family responsibilities such as child care (Ling, 2001; Tausig & Fenwick, 2001). However, working non-standard schedules as a requirement of a job may have negative consequences and impact on family life resulting in work-family conflict.

Changes in the work environment need to be met with changes in organisational policies in order to retain employees. Duxbury and Higgins (2001) reported that work force changes with increased diversity has resulted in a demand for new work policies that are more suitable to the work force. Duxbury Dyke and Lam (2000, in Duxbury and Higgins 2001) found that there is a shortage of technically skilled employees. These employees have different priorities about work and non-work life. Their priorities have shifted more to family and personal life. This indicates that to retain a talented and skilled work force organisations may need to pay more attention to the needs of a more balanced life.

The increase of women in the work force increases the demand for work-life balance because they carry more family responsibilities. Crompton and Lyonette (2006) discussed the necessity of a second income with women in formal employment creating duel income families. In Europe, women's employment has a positive contribution to the economy and is supported by the

policies put in place. It has been identified to reduce poverty and decrease the number of people dependant on welfare. Work-life balance has taken precedence with supportive policies in place. This supports the employment of women in the European Union.

The perceptions of shift work can have an effect on the satisfaction that employees have with their work. Costa (2003) identified a change of employee perceptions about shift work effects. The implications of shift work were accepted as part and parcel of the job and people dealt with the consequences. Recently more unions began to advocate better working conditions in employment. The same results from shift work have been perceived and reported negatively. The reporting environment and attitude towards shift work has changed. This has influenced the findings in many research studies where increased negative statistics are reflected. Costa (2003) further observed a reduced tolerance of the man to the environment which has resulted in an increase in harmful effects experienced from shift work.

2.2.2 The evolution of work

Changes in some organisations have included the realisation and support for employee needs to meet family demands. Voegtlin, Patzer, and Scherer (2012) recognised that business leaders have become more responsible in the pursuit of business. They engage in more holistic approaches to business by considering the impact of work on stakeholders. Stakeholders include employees, the effect of their work on their personal lives has increasingly become an important aspect of business. Organisations have become more family friendly through the design of work structures and policies that accommodate family needs in the form of family leave and maternity leave and many other employee programs (Leach & Butterworth, 2012).

Increased concern for the welfare of employees by organisations can affect employee job performance and satisfaction with work. O'Daniell (1999) recognised that organisations have changed in learning the value of human capital. They realise that the success of a business does not come from its structures but from the people working in them. Individuals that are satisfied with their work environment become committed to their jobs, are more productive and contribute positively to shareholder value. Hammer, Kossek, Anger, Bodner, and Zimmerman (2011) observed family supportive supervisor behaviours by employers as a form of a work-family intervention program. They reduce negative effects on work satisfaction and health on employees. Employer care for employees is displayed by adopting strategies to accommodate employee needs.

Changes in the job demands can be followed by adjustment of work to fit the new demands in order to maintain efficiency of the job. Hilburn (2004) observed how the aviation industry has come to realize the importance of the cognitive complexities involved in air traffic controlling over the years. This has implications on human factors in air traffic control because people have strengths and weaknesses that limit their abilities. The increase in air traffic over the years has increased the cognitive complexity demanded to effectively control air traffic.

Bekier, Molesworth, and Williamson (2011) also recognised that the job of an ATC has become more automated to relieve pressure, increase efficiency and accommodate the increase in air traffic. Simpler tasks are no longer performed by controllers but by systems. McGee, Mavor, and Wickens (1997) identified the division automation has caused in the aviation industry because it reduces work and increases boredom on the controller. Boredom compromises safety because it side-lines controllers resulting in the inability to provide back-up if system failure occurs.

To maintain safety in the aviation industry the role of employees cannot be ignored. Increased concern for safety over the years has directed many studies towards the role played by the human (Air Traffic Controller) in an accident and identified it as the human factor of an accident. 90 per cent of accidents in aviation are a result of human error (Turhan, 2009). Isaac and Ruitenburg (1999, cited in Turhan, 2009) observed that many human error accidents were a result of the structure of work, fatigue, poor sleep, capability, knowledge, and motivation. The interaction which shift work may have with fatigue, lack of sleep and motivation to perform at work makes it important to ensure that it does not result in a fatal accident.

2.2.3 The aviation work force

The industry of aviation presents challenges that may be specific to it. Specialised training and skills are necessary to perform effectively at work. Collins, Nye, and Manning (1990) identified that the job selection of an ATC is strict. It usually requires a minimum specified final year school grade performance, a selection of psychometric assessments and an interview. A medical examination is also necessary to ensure those selected to be ATCs are physically fit to handle the strenuous job. These individuals sit for classroom training, simulation exercises and on-the-job training to ensure that they are mentally and physically fit to tackle the challenges of controlling air traffic. Karson (1967), Karson and O'dell (1974) as well Schroeder et al., (1993), cited in Oakes, Ferris, Martocchio, Buckley, and Broach (2001), shared a similar view which confirms that performing air traffic control services requires a high level of cognitive ability to perceive, process and use information. This could be diminished by poor sleeping habits in the form of SWD that result from shift work.

The increase of women in the aviation industry presents a necessity to accommodate their work needs that may be different from males. Failure to accommodate their work needs may affect their ability to effectively perform their jobs and reduce safety. Fraser (2013) observed that the ATC career is still very male-dominated. In the last decade more women have since entered the field, which has about 30 per cent females. Additionally women in male dominated jobs experience poor career growth with one of the reasons being balancing work and family needs as observed by Reddy (2007, cited in Fraser 2013). ATC is identified as a male dominated industry where female employees may face similar challenges of work-family balance which may affect the careers of female employees (Fraser, 2013). Changes in employees and in the work place have led to an increase in the difficulty to balance the demands and responsibilities of work and family (Grosswald, 2004).

2.3 First sub-problem

To distinguish the role of shift work on satisfaction with life and work

The following discussion will attempt to answer Research Question 1 and will begin with exploring satisfaction with life. A discussion on shift work, support for shift workers and shift work effects on individuals will follow. Marital satisfaction and lastly work satisfaction will be discussed in an attempt to explore shift work interaction with satisfaction and answer the first sub-problem.

2.3.1 Satisfaction

Satisfaction in this study is used as an indication that employees are happy with their family life and their work. Experiences of work-life balance can impact on the level of satisfaction in the lives of employees. Frisch, Cornell, Villanueva, and Retzlaff (1992) identified that quality of life shares the same meaning as life

satisfaction. This has resulted in the measure of life satisfaction on a quality of life scale. Andrews and Withey (1976), cited in Frisch, Cornel, Villanueva and Retzlaff (1992), identified life satisfaction as a person's subjective assessment of the accomplishment of their most valuable desires and aspirations. Other factors that indicate life satisfaction are wellbeing in the following areas: health, psychological, social, assets and ability to grow (Felce & Perry, 1995). Cummins (1996) conducted research that identified intimacy as the most important factor that contributed to life satisfaction. The effect of shift work, health and marriage play an important role on whether employees evaluate their lives as satisfactory or not. Where abnormal shift work hours have caused poor marital outcomes as well as shift work disorders (SWD) they will have an adverse impact on life satisfaction.

A job that can have harmful effects on health can also contribute to quality of life and reduce satisfaction with life. Costa (2003) observed a number of mediating factors in individuals that have been identified to influence the relationship between shift work and health. The older one gets, the higher the likelihood of heart disease and difficulty coping with circadian rhythm disturbances. Additionally, females have a higher risk for myocardial infarction, lower social class and habits of smoking and obesity increases the probability for adverse shift work effects. Different personalities are affected differently and underlying health conditions also determine the tolerance of an individual to shift work. Some individuals have a greater disposition genetically to illness from shift work than others due to personal factors. Some of these are a lifestyle choice which the individual can control to reduce the harmful interaction of shift work with health. All these factors may interact in a dynamic manner to increase or decrease satisfaction with life.

2.3.2 Shift work

Shift work can create challenges as well as provide benefits that can increase or decrease the satisfaction with work and life. Grosswald (2003) observed that there has been an increase in the number of workers who engage in shift work over the years. Women involved in shift work experience higher stress than men because of the dominant care giver parental role they hold. Furthermore, they have an increased chance for divorce and have poor family relationships inclusive of their children. Grosswald (2003) additionally found that employees who worked non-standard hours experienced more negative spill over in comparison to those who worked standard schedules. The benefits of shift work are often undervalued in research. Many employees appreciate the flexibility of the hours commonly associated with shift work and the salary payment received from shift work in comparison to standard work hours (Wilson, Polzer-Debruyne, Chen, & Fernandes, 2007). The benefits of higher earnings and flexibility may improve the quality of life and higher satisfaction obtained from shift workers.

Night shift work can also be included in the shift work hours. Effects of working in the evening may have a different impact on the ability to cope with shift work and affect quality of life differently. Muecke (2005) studied night shift work in the nursing industry and identified the harmful effects experienced by those working night duty with rotating hours over the age of 40 years. These effects include fatigue, poor health, and the inability to provide quality work and maintain the safety of patients. Night shift work in air traffic control may have similar working conditions and result in tiredness, illness and poor work performance which can have detrimental outcomes for flying. Reid, Roberts and Dawson (1997) and Learhart (2000), cited in Muecke (2005), agreed that there are personalities that function better at night time and display better performance than others. These people are known as *night owls* and would make better night shift workers than day workers. These people may be happier with night shifts rather than

standard schedules. Panton and Eitzen (1997) and Reid et, al. (1997), cited in Muecke (2005), discussed night shift work disturbances on the body's circadian rhythms which effect physiological wellbeing such as cardiovascular, digestive, reproduction, gastrointestinal disorders and the functioning of the immune system. The combination of these effects shows a result of increased sick leave in environments with night shift work. Reid et, al. (1997), Learheart (2000), Poissonnet and Veron (2000), Reid and Davidson (2001) and Lomond, Dorrian, Roach, McCulloch, Holme, Burgess, Fletcher and Dawson (2003), cited in Muecke (2005), all agreed that the older an employee gets the more difficult it becomes for their bodies to adjust their circadian rhythms to the demands of night shift work. Older employees may struggle to adapt to changes and experience a poor quality of life which reduces satisfaction with life due to illness from shift work.

2.3.3 Support for shift workers

The time shift workers spend away from home may leave family responsibilities unattended. Additionally support with family demands can improve the experience of work-life balance. White and Keith (1990) recognised that family design has been influenced by the nature of employment individuals undertake. In the beginning, employment provided what was known as a "family-wage" from a father to their family. As society changes employment provides an "individual-wage" inclusive of women who are employed. The traditional structures of families have evolved. More women, through "gender equality", have accessed employment and have become independent working women. More shift working women leaves a potential gap in family responsibilities whereby support is required to effectively meet work and family obligations. The amount of support received by shift workers may determine whether they are satisfied with the effect of shift work in their lives (Costa, 2003).

Organisations can also play a role that can be supportive of in mitigating harmful shift work experiences. Alleviating harm from shift work can increase the experience of work satisfaction and reduce negative impact on satisfaction with personal life. Thierry (1980, cited in Costa, 2003) advised of organisation interventions that can be used for shift work in the form of compensation such as increased pay and increased amount of time off. Additionally, eradicating specific items that make shift work a challenge for employees such as reduced work load, working hours and night shifts. Increasing the number of people on shift minimises the exposure. Koller (1996) also identified ways in which organisations can combat the harmful effects of shift work through prevention rather than treating the symptoms of diseases. Recommended regular medical check-ups can identify early signs of potential health impact and medical counselling can deal with psychological factors. Organisations with such initiatives in place may have fewer cases of work-life conflict and health problems that result from shift work. Kogi (1998) discussed the International Labour Organisations (ILO) recommendations from ILO convention 171 about shift work. ILO further suggested these recommendations become international regulations for all companies involved with shift work in order to minimize harm and ill health probabilities. These regulations address the presence of women in shift work who face the increased demand of work and family, shift schedules, employee involvement in task design and support for employees. Shift worker's health and safety should be essential to organisations because it enables employees to perform their jobs optimally. Preventative organisation interventions eliminate the harmful effects from shift work. This may increase satisfaction with life and show employer care which may increase employee motivation, commitment and overall work satisfaction.

Employees' experience of shift work may require individualised support that is more effective to their unique experiences. Costa (2003) described that different individuals experience shift work in a different ways. This is partly because of

the type of support, if any, in their lives, different coping mechanisms, family structures, individual characteristics, social factors, working conditions and organisation culture. The combination of all these factors interacts in a complex dynamic manner producing different outcomes for different individuals. The right combination of support mechanisms can result in increased satisfaction from shift work while the wrong combination may decrease satisfaction with life.

Income and the ability to afford some forms of support such as day care can contribute to the experience of work-life balance. Griggs, Casper, and Eby (2013) identified that income factors have been identified to play a role in work-family conflict. Low income employees experience stress daily from poverty and usually work jobs that do not have support for work-life balance which may result in an increase of work-life conflict. Community support for low income employees to manage work and family demands plays an important role in the form of community programs, friends and neighbours. Knauth and Hornberger (2003) additionally recognized the role of family, friends and most importantly partners to support shift workers. Supportive friends, family and partners may impact on satisfaction with life particularly with child care assistance while employees are at work.

Shift workers can also contribute to how shift work effects them. This can allow them to influence how they experience work-life balance. Knauth and Hornberger (2003) acknowledged the important role individuals play in communication for assistance and support. Time management is also important to accomplish family activities when they are not on shift. Other means to cope with shift work include regular exercise which increases the quality of sleep and healthy eating habits. Shift work employees are able to mitigate the negative outcomes associated with shift work which can minimise dissatisfaction. Employees can actively play a role in some areas such as obtaining support

and maintaining personal health. This can ensure shift work does not reduce satisfaction and quality of life for them.

2.3.4 Shift work effect on the individual

Shift work effects on employees can be positive or negative. Negative shift work effects can reduce satisfaction with work however positive effects on shift work can increase satisfaction. White and Keith (1990) reported the different effects of shift work on an employee. A few of the effects include, and are not limited to the following: reduced sleep, poor mental wellbeing, adversely effected physical health, reduced amount of friends and negatively affected family relationships.

The variety of forms that shift work occurs can have different effects on employees. Harrington (1978, cited in Costa, 2003) identified that 10 per cent of people working shifts are satisfied and do not have a problem meeting the demands stemming from shift work. Furthermore, shift work takes many forms of hour schedules, organisational structures, work activities and these complexities produce unique outcomes of shift work. The different levels of exposure to the conditions that result in harmful effects, such as night shift work, result in different experiences and possibly without any harmful experiences (Costa, 2003). This means that the right combination of factors related to working conditions, hours and support may not yield harmful outcomes instead results in work satisfaction and a realised work-life balance.

Effects of shift work can be harmful to employees' health and reduce the quality of their lives. Waterhouse et al., (1992), Colquhoun et al., (1996) and Boggild & Knutsson, (1999), all cited in Costa (2003), all agreed that health implications from shift work are vast, they include digestive problems, cardiovascular diseases, mental wellbeing, and circadian rhythms as well as psychological and

social wellbeing. These effects may reduce health, wellness and satisfaction with life.

Although some employees experience negative effects from shift work some still prefer it over other standard work hours. The economy and society has benefitted from shift work however, negative implications to health may prevail (Hossain et al., 2004). Despite all the negative effects of shift work experienced by individuals, some people still prefer to work shifts that have poor schedules because they allow them to spend more time during the day on non-work activities (Costa, 2003). These employees obtain higher satisfaction from freedom during the day and are prepared to deal with the effects that follow.

Working awkward shift work hours can have an effect on sleep and lead to fatigue. Fatigue could impact the ability to perform at work and satisfaction with life. Hossain et al. (2004) advised that employees who work shifts are more susceptible to the effects of sleepiness and chronic fatigue which reduced their alertness and productivity at work and outside work. Paley and Tepas (2004, cited in Thompson et al., 2006) conducted studies identifying a positive relationship between fatigue, negative mood and irritability feelings. (Rogers 1997; Harrington, 2001, cited in Muecke, 2005) observed some of the world's detrimental accidents to have happened as a result of fatigue taking effect during a night shift. Fatigue and sleepiness has a greater effect on those working a night shift rotation and less on those working a permanent night shift schedule. This is because when the body's circadian rhythms adjust to one routine, it is better able to maintain it as opposed to many routines which are difficult to sustain. Shift schedule design which allows for easy adaptability, minimised fatigue and increased alertness may reduce negative moods, increase happiness and improve performance at work.

2.3.5 Marital Satisfaction

Shift work hours can reduce time available for married couples and affect marital satisfaction. Leach and Butterworth (2012) suggested that there is a relationship between occupational stress from work and the quality of relationships that employees have outside work. Simon (1990), cited by Presser (2000) in Leach and Butterworth (2012), agreed that the nature of the hours that an individual works, particularly in the form of shifts, has an adverse impact on their relationships and increases the probability of divorce in a marriage. White and Keith (1990) observed that shift work requires work outside of normal hours and being away from home when other family members are at home. This means that employees are exposed to non-overlapping hours and do not see their spousal partners as often as those who are not exposed to shift work. White and Keith (1990) conducted a study to evaluate the effects of shift work on marital relations which showed that it reduces marital quality, increases the number of spousal disagreements and ultimately increased the possibility of divorce.

Challenges of marital satisfaction may be higher for women with children in shift work. The increased demands on their time from family responsibilities and shift work leaves less time available for their marriage. Presser (2000), in support of a similar view, conducted a study that evaluated the effect of working night shifts, rotation work and working during weekends on marriage. The outcomes were affected by whether there were children less than five years, length of time married and whether the male or female spouse worked these shifts. Males working fixed scheduled night shifts were found to be 6 times more likely to divorce and if they were female the possibility increased additionally by 3 times. The amount of time that married couples are able spend together has been identified as a critical factor. Shift work reduces the time spent engaging in couple activities such as eating dinner together and leisure activities. Reduced

social interaction weakens the bonds between couples, reduces commitment to one another and increases marital instability. Greensteins (1995, cited in Presser, 2000) argues that the employment of females resulted in an increased conflict in marriage. This is because it is against the traditional design of marriage as well as family and the outcomes reduce the satisfaction of their male partners. Shift work and stress experienced from work demands may reduce the satisfaction experienced from relationships.

2.3.6 Work satisfaction

Shift work effects can influence employee satisfaction with work. Weiss Dawis, England and Loquist (1967, cited in Scandura and Lankau, 1997) reported work satisfaction as the outcome of an assessment of the work and the associated environment an individual makes. Mowday, Steers and Porter, (1979, cited in Scandura and Lankau, 1997) identified commitment as the extent to which employees align themselves to the same organisational objectives and values, and the degree of effort they make toward achieving organisational goals. Work satisfaction has also been identified as having a negative relationship with employee turnover and also acts as a buffer against the harmful effects of stress at work (Van Saane, Sluiter, Verbeek, & Frings-Dresen, 2003). Air traffic controllers who are satisfied with their jobs may create a buffer against the harmful effects of shift work stress.

Time flexibility of work hours can make the experience of shift work more satisfying. Employees may be able to attend to family responsibilities at their own discretion. Scandura and Lankau (1997) in a study revealed that women who are able to obtain flexible work hours from their employer find it easier to manage work and family demands. These employees experienced more job commitment and satisfaction with work than women who do not have flexible work hours. Hossain et al. (2004) identified that the design of shift hours longer

than eight hours and a work week that is compressed showed higher work satisfaction. This also increased work production when employees returned because of the perceived long break away from work. Some employees show preference and satisfaction with shift schedules that allow more uninterrupted time with family regardless of the long hours they work.

The nature of the work environment for employees can affect the satisfaction with their work. Turhan (2009) discussed how the culture, climate and structure of an organisation can affect the performance at work. This may be in the form of working conditions such as poor work design, workload and shift structures or a reward system in the form of money or time off after a night shift. These factors affect the motivation for work which has an impact on work satisfaction (Turhan, 2009). This indicates that in a positively motivating work environment, controllers may be more satisfied and perform their jobs well eliminating accidents. However, with poor working conditions, motivation may drop together with work satisfaction and negatively affect the performance of a controller which can have life threatening outcomes.

2.4 Second sub-problem

To explore how shift work conflict may affect employee stress

To answer Research Question 2, I will begin with a discussion about stress. It will be followed by an exploration of work-family conflict and inter-role conflict. Work-life balance and work-family roles will be discussed to explore how shift work may interact with employee stress.

2.4.1 Stress

Stress may be experienced by employees as a result of their work or personal lives. Challenges from the job demands of ATC and shift work can have an impact on stress. Boles, Johnston, and Hair Jr (1997) in a study observed that role stress relates to work-family conflict, role conflict, lack of work satisfaction and the increased probability to leave a job. The different demands on an individual from different roles interact together in a manner that may result in stress experienced whether in a work or non-work role. A shift working ATC in a mentally demanding and stressful job, with the addition of stress experienced from the inability to balance shift work demands as well as personal life may increase the impact of overall life stress. Dean and Lin (1977) observed that the inability to cope with work demands may cause stress on employees, and stress experienced by employees may cause illness. Social support may act as a buffer and reduces the impact of stress experienced by individuals.

Work load for ATC may impact employees' in a negative stressful way. Turhan (2009) acknowledged the acceptance of stress as normal, expected and part of the job of an ATC. There is an interaction between work load, stress and the performance of an ATC. An increase in work load increases stress however, reduced work load results in reduced motivation and boredom creeps in. Boredom is a risk to safety because it negatively affects performance at work. This implies that the right level of work load and stress in air traffic control is required for motivation and has a positive impact on job performance.

2.4.2 Work-family conflict

The presence of work-family conflict is used to indicate poor work-life balance in the study. Three types of work-family conflict have been identified by researchers Netemeyer, Boles and McMurrian (1996), Stephens and Sommer

(1993) and Greenhaus and Beutell (1985), cited in Carlson, Kacmar, and Williams (2000). These three are: time based conflict, strain based conflict and behaviour based conflict. In shift work, time based conflict may manifest itself where time spent at work on a night shift results in the inability to spend time at home having dinner with family. Strain based conflict might occur with an inability to adjust to changing shifts and disturbed circadian rhymes results in fatigue and the difficulty to be awake and engage in family activities. Lastly, behaviour based conflict may occur where an ATC who gives instruction at work continues to give instruction to others outside of work. This may occur in relationships that require collaboration or receiving instruction which makes this behaviour inappropriate. Additionally, the researches above all agree that more studies need to be done to identify the effect of family on work and the conflict that may arise there (Carlson et al., 2000).

Flexibility in work may reduce the experience of work-family conflict because shift workers can have the ability to attend to their family demands. In the new economy, many have since been engaged in flexible work environments, such as working from home, in order to address issues such as work-life balance with the use of technology (Perrons, 2003). This allows them to be present at home and provides flexibility to engage in work tasks and family responsibilities at their own discretion. The result is a balance of work and family however, the division between work and family becomes blurred. Unfortunately the air traffic control environment requires work to be done at the place of work during specified hours. They cannot take advantage of the new ways that employees and organisations are moving towards that eliminate work-life balance issues.

2.4.3 Inter-role conflict

The experience of inter-role conflict as a result of shift work indicates challenges in the ability to fulfil the work role or roles outside of work. Greenhaus and

Beutell (1985), cited in Carlson et al. (2000), observed work-family conflict as a type of inter-role conflict because work and family characteristics are different. Work and family conflict affects work satisfaction in the form of organisational commitment and turnover, satisfaction with life and ultimately psychological stress which was supported by Frone, Russell and Cooper (1992), Higgins, Duxbury and Irving (1992), O'Driscoll, Ilgen, and Hildreth (1992) and Parasuraman, Greenhaus, Rabinowitz, Bedeian, and Mossholder (1989) cited in Carlson et al. (2000). Inter-role conflict takes place from both directions where work interferes with family or family interferes with work (Carlson et al., 2000). Information on dissatisfaction from the effects of shift work on employees is available, however information indicating dissatisfaction caused by family on work has not been available.

Limited time available can result in inter-role conflict. The time available to perform the demands of a role may be insufficient when time has been used to perform other roles. Tausig and Fenwick (2001) identified the lack of sufficient time to meet the demands of work and family has been identified as a contributor to work-life conflict. Those who have control and flexibility over their non-standard alternative work schedules experience balance between work and family. The flexible time also played a role in reducing time stress and the interference between time spent at work and home was decreased. Balance is more possible when the alternative non-standard schedule allows control over one's own time on a voluntary basis. Hochschild (1997, cited in Tausig and Fenwick, 2001) conducted research that identified scarcity of time employees' face when distributing their time between roles of work, family or personal life. The research showed that control of work schedule does not affect work-life rather, the perception of increased balanced is due to the perception of schedule control. Additionally, Grosswald (2003) observed that time is limited, continuously passing and valuable. There is a fight over time that is spent participating in one role. This means that it cannot be spent on the other role

and the result is that the different roles of work and family are competing for time. This competition for time may cause anxiety and stress to the individual faced with the dilemma of insufficient time to satisfy work and family demands (Tausig & Fenwick, 2001).

2.4.4 Work-life balance

The demands women experience in their family lives as well as meeting the demands of work may be challenging. This challenge may reduce the experience of work-life balance. Duxbury and Higgins (2001) identified work-life balance as the capability to fulfil all the roles an individual has such as employee, senior, subordinate, relative, friend, parent, child, partner and member of society. Crompton and Lyonette (2006) observed that the aspect of work-life balance has increasingly surfaced as more women are employed in the work place. It was not prevalent earlier because men were the only ones employed for a salary and women's work was household work. The employment of women with children and the stressful challenge they face to manage their roles has resulted in the recognition of work-life balance (Ling, 2001).

Work-life balance and the experiences of women must be considered because many studies have provided evidence that men and women do not share similar experiences (Harris, 2004). Ahmad et al. (2011) noticed that traditionally women do the household work and are the main care giver for children. Additionally to these responsibilities, they hold fulltime employment similar to men. Women usually have more responsibilities and experience work-life balance differently to men in the form of work-life conflict which may have more stressful outcomes than for men.

Men who are unable to meet their personal life demands can also experience challenges of work-life balance. Emslie and Hunt (2009) provided a different view about work-life balance, adding that men also experienced work-life conflict depending on their priority between work and family. Those men with a higher priority for family experience conflict therefore, there should be more gender neutral theories to explain the concept of work-life balance. Men should not be excluded in work-life conflict, dissatisfaction and stress because they may be affected as well (Hughes & Bozionelos, 2007).

There are different views of work-life balance however the South African view is not clear. Mageni and Slabbert (2005) observed the requirement of more studies on the reality of work-life balance in South Africa. International studies have been extensively conducted and models have been developed. The application of these models in South Africa must be adapted to account for South African labour dynamics. Bird (2003, cited in Mageni and Slabbert, 2005) observed that some organisations view work-life balance to be the responsibility of the employee. They share the out dated international view of work and family as separate categories in the life of an employee. Some unique circumstances that a South African work force faces include unemployment, retrenchments, trade unions, and globalisation and is not limited to these. The pressure for many employees is to maintain employment and thus see issues like work-life balance as a luxury. Mageni and Slabbert (2005) recommended that in the decision to select a work-life balance system in South Africa, the organisational economic intellectual capacity must be taken into account. This is due to the vast socio-economic differences present in South Africa that influence work.

2.4.5 Work and family roles

The different roles individuals participate in can contribute to satisfaction with their lives. Thompson and Bunderson (1997, cited in Clark, 2000) discussed the

value placed by individuals on work and family may affect family-life and result in conflict. Barnett and Hyde (2001) argued that participating in multiple roles is more beneficial. Mental well-being, physical wellbeing and the relationships of those who participate in multiple roles were observed as better that those who participated in fewer roles. In a study, Barnett and Hyde (2001) observed that the negative aspects of one role can be buffered by positive aspects in the other. A second income gained from women's employment alleviates economic strain on the family. Additionally, less pressure is placed on men as the sole providers of families. More roles increase social networks of quality that are beneficial and increase prospects for social support which enhances wellbeing. The more roles that one participates in, the greater the chances for success. This provides more frames of reference that are available as solutions to draw from. Greater self-complexities act as a buffer when the negative aspects of one role effect are reduced by the other role because there are other aspects of self to refer to. Dual income partners have alike experiences from work and these facilitate communication and increase interaction. Those that hold liberal views of gender roles benefit from multiple roles. Employed women with careers show better mental health, positive attitudes and better parenting abilities (Rincover 1999). Women pursuing careers engaged in multiple roles may be more satisfied with life than those who have fewer roles.

Grosswald (2003) also investigated the conflict theory advocating for negative spill over which suggests that work and family are at opposite ends and are competing. This supports the idea that participating in one role disables you from participating in the other and time spent in one role takes away time from another role. Grzywacz et al. (2002) identified that work and family spill over is spread across different ages and not just younger employees with young children. More research around spill over focuses on the negative spill over from work to family and minimum literature is available about positive spill over. Barnett (1998, cited in Grzywacz et al., 2002) believes the pros of combining

work and family are greater than the cons. Orthner and Pittman (1986), Kirchmeyer (1992) and Grzywacz (2000), cited in Grzywacz (2002), agree that positive spill over increases work satisfaction and commitment to work.

On the contrary, Googins (1991, cited in Clark, 2000) observed that before work became formalized and industrialised, families used to engage in production through farming without any formal segmentation between work and family. Clark (2000), supporting this idea, developed a theory called the border-crossing theory, which advocates that humans are frequent border crossers. They cross between work and family with family influencing work as well as work also influencing family. The borders between work and family are constantly being negotiated in order to find a balance. Clark (2000) added that increased participation in work and family where individuals identify with both roles makes them more proficient and creates a better balance with less stress. Satisfaction is maintained by individuals who frequently negotiate the borders of work and family. They cross over whenever it is necessary to meet their needs and maintain happiness.

The spill over between work and family roles can have a positive or negative effect on satisfaction and stress. Spill over is the transfer of positive or negative attitudes, feeling, emotions, energy and ability from work to family or family to work (Grosswald, 2003). Staines (1980, cited in Clark, 2000) identified that when people invest in both work and family, they also try to fill shortfalls from one role with the other. Grosswald (2003) further identified that studies have shown the negative effect of spill over and less research has been conducted on the positive effects. Skills learnt from work can be used at home to improve home life. These may include budgeting, time management and scheduling skills to manage tasks such as cooking, cleaning, child care and groceries. The compensation theory suggests that work and family are complementary and that unhappiness in one will result in seeking satisfaction in the other role. This

informs the idea that spill over from work may be beneficial to the family where there is a shortfall and thus they are interdependent (Clark, 2000). Satisfaction from being able to safely land aircrafts at work may enhance air traffic controllers' satisfaction with their job and meaning of life.

Different views are available about the separation of work and family. The inability to manage challenges from both roles may result in stress. Grosswald (2003) disputed the spill over theory of segmentation between work and family which identifies work and family life as divided. Bulger, Matthews, and Hoffman (2007) identified that the boundaries employees create between work and family assists them in managing the demands of work and family and eliminating conflict. Ashforth, Kreiner, and Fugate (2000) further added that work-family conflict increases occupational stress. Application of the boundary management theory suggests that a shift worker who may create compartments in their life may experience a better balance between work and family. They may also experience less stress and an increase in satisfaction with their job and family life. Bulger et al. (2007) discussed that the strength of boundaries will result in a segmentation integration continuum. This suggests that segmentation consists of strong boundaries that separate work and family while flexible boundaries integrate work and family. Depending on the individual's preference they will vary on the continuum of segmentation and integration. Their ability to separate or integrate work and family effectively will determine their experience of stress.

The outcome of managing work and family demands can have an impact of satisfaction with life. Kanter (1977) in Grosswald (2003) conducted research that identified that work and family cannot be segmented and compartmentalised into separate categories. The roles an individual participates in for work and family may interact and the result could have good or bad outcomes. More research has been done on the negative outcomes that result

in conflict (Grosswald, 2003). During shift work, boundaries may be difficult to maintain because family time is spent at work. This results in the inability to fulfil family responsibilities which may cause work-family conflict and result in a negative spill over. Emotions may spill over from work to family and decrease overall life satisfaction.

2.5 Conclusion of literature review

Hughes and Bozionelos (2007) study on male bus drivers showed results of an absence of work-life balance. This caused dissatisfaction, withdrawal attitude towards work, increased turnover as well as fake sick leave. Work-life balance may not only be an issue that effects females in the work environment, men too may be affected. Support measures should take all employees into consideration. Greenhaus and Powell (2006) advised that in the consideration of work-life balance, work-family enrichment must not be excluded. Work may be a cause of conflict, reduce satisfaction and increase undesired stress. However, the work role may improve the quality of life for employees leading to enrichment. The relationship between work and non-work life for shift workers should ultimately result in a balance and enrich lives of ATCs.

Shift work schedules that demand employees to be at work outside standard work hours and inhibit the ability to fulfil their non-work responsibilities may reduce work-life balance for ATCs. SWDs related to poor sleep and illness reduces satisfaction with work, marriage, life and ultimately may increase stress on employees. These disorders, particularly fatigue, reduce mental capability and may affect ATC's ability to do their job which has built cognitive complexities and stress. The research questions attempt to guide the research study in order to uncover how the proposed concepts from the model of Work-family conflict by Kopelman (1983) manifest for ATCs in South Africa.

Sub-question 1: To distinguish the role of shift work on satisfaction with life and work

Sub-question 2: To explore how shift work conflict may affect employee stress

3 CHAPTER 3: RESEARCH METHODOLOGY

This chapter will discuss the methodology followed in the research. It will provide a framework of the activities conducted in order to answer the research questions. It begins with a discussion of the methodology that was used followed by a focus on the appropriateness of the method. The research design, collection of the data, instruments used to assess participants, data analysis and interpretation will follow. The limitations of the study as well as validity and reliability will complete the discussion. In the conduct of this research the treatment of participants as well as the activities conducted falls within acceptable research guidelines and includes ethical considerations.

3.1 Research methodology

Newman (1998) was not satisfied with the inability of the quantitative research approach to accurately study human social complex concepts which qualitative research could. Qualitative research is a naturalistic approach that focuses on the observation and interpretation of an event in its natural environment in order to possibly produce a theory. Firestone (1987, cited in Newman, 1988) observed that qualitative research provides an individual's social construct of reality with a purpose of understanding the subject.

This research was aimed at identifying the work-life balance in shift working ATCs with the use of qualitative research method. Malterud (2001) observed that quantitative research, which is more statistical, should be used with qualitative research in a complimentary manner because they both investigate similar principals. This research is based on a model by Kopelman (1983) describing work-life balance where research was conducted in a quantitative setting. This research is qualitative and investigates similar principals with

specific references to the South African environment which may compliment the findings from the initial quantitative study.

Marshall (1996) suggested that qualitative research may be more beneficial in providing a deeper understanding of human, social and psychological issues which may be complex. The following authors conducted research in the area of work-life balance and used a qualitative approach: Crompton and Lyonette (2006), Hughes and Bozionelos (2007) and Emslie and Hunt (2009). Hughes and Bozionelos (2007) identified that work-life balance was experienced differently by individuals based on their own perceptions and experience. This implies that it is subjective to each individual and thus required a qualitative approach that captured the unique perceptions of the participants.

A qualitative approach is unrestrictive and provides flexibility that allows respondents to share their experiences (Sandelowski, 1986). ATC's participation and interaction with shift work and family, personal life, marital life as well as time available has informed the study of their experience of work-life balance. All these roles and the dynamic interaction of work and family created complex scenarios which required a flexible approach that was able to grasp ATC's experiences.

3.2 Research Design

3.2.1 Case study

A case study was used to identify work-life balance at the Air traffic and Navigation Services (ATNS) company specifically among ATCs. Permission was obtained from ATNS to conduct a case study with ATCs, refer to Appendix D. The research investigated the dynamic interactions of constructs specific to their environment. Eisenhardt (1989) observed that the case study method

involves a deep analysis and comprehension of the dynamics of a single or numerous settings. Gerring (2004) identified that the benefit of using a case study is the ability to provide a deeper insight about the subject under investigation and explain or confirm ideas. This can be in a descriptive or causal manner where the relationship between constructs is explained. The scope of the information provided is deep, and the explorative nature allows for multiple propositions and hypothesis to be tested. Bennett (2004) identified an additional benefit for the use of case studies as the presence of construct validity where the best characteristics that represent a concept are measured. A case study may be able to capture the concept in its natural setting and it allows for the contextualization of a measure which is not possible in statistical research. The exploratory nature of case studies also provides unlimited possible new information which may be discovered, and different views of variables and theories may be generated (Bennett, 2004). Information that focused on the dynamics that were active in the job and the life of an ATC was obtained through a case study. The use of a case study provided information that was present in the unique South African context of shift work and aviation.

3.2.2 Interview

This research used semi-structured interviews to obtain information from respondents. Cohen and Crabtree (2006a) identified semi-structured interviews in their formal nature containing a predetermined structure and questions allow for the flexibility of deviation from structure if the interviewer deems it appropriate. The topics are followed however, open ended questions and prompting may be applied in order to obtain information (Corbetta, 2003).

Cohen and Crabtree (2006b) identified a disadvantage where too much flexibility may stray research in an unintended direction. Semi-structured interviews were recorded by taking notes and the use of a voice recorder with

permission from the participant. This allowed the interviewer to be able to carefully identify relevant information later and accurately do a rapport. Another disadvantage of semi-structured interviews is the inability of the researcher to ask and probe for relevant information (Kajornboon, 2005).

The use of a semi-structured interview was beneficial to this research because it gave ATCs the freedom to share their unique individual experiences of work-life balance. The flexibility from semi-structured interviews allowed for the inclusion of unexpected aspects that prevailed in the South African labour force, cultural, family and socio-economic environment that interacted with work and family.

Opdenakker (2006) observed that the use of interviews that are face to face have nonverbal cues which should not be missed however, they should not be misinterpreted as well. The use of facial expressions, vocal tone and other bodily movements that were intended or unintended formed part of the research. These social cues were correctly interpreted and taken into account together with the verbal responses from the interview.

3.3 Population and sample

3.3.1 Population

Bryman (2012) explained that the population is all the units present in the universe where the sample will be drawn from. For this research the population comprised of people who had the potential to be selected as part of the sample. The case study was conducted at the company facilities of Air Traffic and Navigation Services (ATNS) operating at OR Tambo Airport where ATCs were exposed to shift work. I am a former employee of ATNS and my previous networks and relationships allowed me access to conduct the research there.

ATNS was appropriate because OR Tambo Airport is the largest and busiest airport in South Africa with 206603 aircraft movements between 2013/2014 (ACSA 2014). The business necessitates shift work and operation 24 hours a day which added to the work load as well as complexity in the role of an ATC. All these dynamics at ATNS that controllers experienced displayed the interaction between work and family that described work-life balance.

3.3.2 Sample and sampling method

Non-probability sampling method was used to identify the relevant participants who work as ATCs. Bryman (2012) identifies the process of identifying the units from the population that will participate in research as sampling. It can take place in the form of probability or non-probability sampling. Probability sampling occurs when all the units have an equal chance of being randomly selected which will most likely be representative of the population. Non-probability sampling takes place when the sample selected is not conducted by the use of random sampling and certain units in the population have a higher chance of being selected as part of research.

In order to understand human behaviour, Marshall (1996) objected to the use of random sampling. Although it allows generalisation to the population, random sampling may not be as effective as non-probability sampling. Some people can provide better information about complex behavioural issues that may be more valuable to research. The use of only ATCs working shifts in the research has provided better quality of information than selecting random people from the population. Non-probability sampling was a better choice because those who work as ATCs were able to provide information based on their experiences first hand.

The interview of fifteen ATCs formed part of the sample of participants. Sampling size for interviews in qualitative research is not specified (Bryman, 2012). The researcher identifies a sample size that can generate all the information required as well as allow a deep scope analysis of the information that is manageable in size (Onwuegbuzie & Collins, 2007). ATCs were encouraged to participate in the research because they would be able to share the dynamics, challenges and achievements they have experienced in their work. Those who suffered from poor effects and conflict from their work may be able to benefit from the results. Research findings can be used to influence management to design better schedules and provide better support that can improve employee wellness and performance at work.

A sample was drawn from employees who are ATCs from Air Traffic and Navigation Service (ATNS). These employees have experience of industry specific stresses while working shifts. Participants were ATCs based at OR Tambo International Airport who routinely worked shifts.

3.4 The research instrument

Conducting interviews provides narrative experiences of individuals where they describe the unique aspects of their interaction of work and family (King & Horrocks, 2010). An interview questionnaire was drawn up to serve as a guide to the topic of discussion. These questions were based on the concepts identified in the Work-family conflict model by Kopelman (1983). Concepts in the model provided a guide to the questions which were: work conflict (WC), family conflict (FC), inter-role conflict (IC), work satisfaction (WS), marital satisfaction (MS), life satisfaction (LS), and stress for shift working ATCs. All these questions were open ended to accommodate the individualistic experiences of controllers that were captured. The interview schedule began with a brief that advised participants of the nature and purpose for the interview

and informed them of their rights as participants. Upon agreement, the interview proceeded with the designed questionnaire.

3.5 Procedure for data collection

Semi-structured interviews were conducted on a face-to-face basis where participants provided information through discussions with the interviewer. Cohen and Crabtree (2006b) suggest the use of a voice recorder where permissible as well as taking notes which will aid in ensuring all the information that is provided is captured. Transcripts of the conversations are created and used to analyse the data (Bryman, 2012). Interviews were conducted at ATNS or at a venue that was more suitable to participants. They were recorded with their consent and transcriptions of interviews were also done.

3.6 Data analysis and interpretation

Malterud (2001) advised that the researcher may analyse the data collected from respondents by organising and categorising it in order to gain clarity of the information. This forms part of the interpretation of the data collected. Data provided by participants was arranged into common themes and analysed against the proposed research questions. It was presented in a meaningful manner where it was converted to valuable information.

3.7 Ethical considerations

Orb, Eisenhauer, and Wynaden (2001) identified that in conducting an interview, participants may disclose personal information which may be sensitive. This requires that it be treated with confidence, privacy and obtaining informed consent. The rights of participants were respected. The consequences

of interviews were not harmful to participants and pseudonyms were used where necessary to prevent harm. The principal of justice was applied where researchers recognised the vulnerability of the participants by treating them fairly and without exploitation.

3.8 Limitations of the study

Gerring (2004) advised that case studies may be better for extracting information about a specific subject in a narrow scope however. The applicability of those findings in a wider breadth may be limited. The result obtained in the case study from a single unit was true to it and was not be applicable to other units. The ability to generalise findings from a case study was limited because it was conducted from a small number of units. The findings of this research are limited to industries similar to aviation and jobs that are similar to air traffic control.

Bennett (2004) identified that the major limitation of qualitative research case study was their inability to be used statistically. The frequency of an event accruing was not judged and averages and inferences were not used in this case study as in other statistical research.

Employees may not have felt comfortable sharing information that was personal to them. This might have limited the information available for analysis and the determination of outcomes of the study.

3.9 Validity and reliability

3.9.1 Validity

The validity of research addresses the level of credibility or accuracy of the research results (Agar, 1986, cited in Merriam, 1995). King and Horrocks (2010) advised that using qualitative research has the advantage of adding greater value to research and thus more validity. The information from the study deeply focused on ATC shift work effects on work and family. It was rich with detail in comparison to data that would be generated by quantitative research. This is because the research candidates provided more details that are linked to the data and helped confirm, explain and support their statements.

Construct validity identifies whether the concepts used to measure a phenomena are relevant. For this study the concepts provided by the work-life conflict model of Kopelman (1983) ensured the relevant concepts were used and similar questions were included in the questionnaire. This model was tested in a quantitative study conducted by Chiu et al. (1998) where the results showed high construct validity. A pilot study was conducted that tested the relevance of the questions in the research instruments. This determined that the questions addressed the intended topic.

Poortinga, Bickerstaff, Langford, Niewohner and Pidgeon (2004, cited in Bryman, 2012) observed external validity as present in a study when the findings of the research can be used in other situations and generalisations can be made. The case study method of research performed only comprised of ATCs from one company, which was ATNS. It is unlikely that this research can be used in a different environment and generate findings similar to this study. This is due to the uniqueness of the complexities that exist in the job of an ATC

acting together with organisation specific influences as well as the individuals. It is possible to generalise these results to industries that are similar to aviation and the job of an ATC.

Internal validity assesses the findings from the research whether causality occurs (Bryman, 2012). Causality in this study was not identified as present because the constructs concerned were not initially identified as dependent or independent variables. The independent variable would have acted on the dependent variable and resulted in a cause and effect relationship. Different interactions occurred in this study and were identified. However, constructs were not diagnosed in greater detail as to determine which one affects the other.

3.9.2 Reliability

Reliability is the consistency of the research, the ability of the research to be replicated and generate similar results (Merriam, 2009). King and Horrocks (2010) added that reliability in qualitative research may be compromised due to the ability of the researcher to subjectivity influence the research study. This would result in the compromise of whether the outcomes of the study could be reproduced under similar conditions. The influencing behaviours of participants or any other activity by the researcher, which may be unethical or inconsistent with the design of the study will produce outcomes that will not be repeatable. As a researcher extra care was executed to ensure that the activities and events of this research were objective and served the purpose of the research.

4 CHAPTER 4: PRESENTATION AND DISCUSSION OF RESULTS

4.1 Introduction

The purpose of this study is to describe work-life balance for shift working Air traffic controllers (ATCs) in South Africa. The study describes the effect of shift work on employee satisfaction and stress. This chapter will begin with the presentation of the results of the study. The discussion will begin with identifying the demographic profile of the participants followed by the prevailing themes obtained from the participant responses. In order to maintain confidentiality, participants' names will not be disclosed. They will be referred to in the chronological order of the interviews conducted such as Interview 1 for the first interviewee and Interview 2 for the second interviewee etc.

The chapter will additionally focus on the discussion of the results in the study. The research findings will be explained with the use of the literature review presented in Chapter 2 and the research findings. It will commence with the presentation and discussion of demographic profile followed by the discussion of Research Question 1, discussion of Research Question 2 and lastly a conclusion will be drawn which will be established from the research questions.

4.2 Demographic profile of respondents

In the discussion of the demographic profile of respondents it will begin with the presentation of the results. This will be followed by the discussion and lastly the conclusion of the demographic profile will be discussed.

4.2.1 Presentation of results for the demographic profile

The sample of participants in the study was made up of fifteen Air Traffic Controllers (ATC). Fifteen interviews of employees who currently work as ATCs in Johannesburg OR Tambo Airport from Air Traffic and Navigation Service (ATNS) were planned and conducted. Eleven participants work in the position of Area Air Traffic Control Officers known as ATCO 3 and four work as Tower Air Traffic Control Officers known as ATCO 1. Seven participants of the study are males and eight are females. The races of the participants were as follows: seven Blacks, four Coloureds, two Whites and two Indians. The majority age of participants ranged between the ages of 26-35 years. Three are between the ages of 36-45 years and only one is between 18-24 years of age. Six participants are married and eight of them have children. Seven participants have dependents that are not their children. Refer to Table 1 which illustrates the demographic profile of research participants.

The demographic profile of the research participants consists of more respondents that were recruited as school leavers. Majority of them have only been employed by ATNS as their first and only employer. They have been selected and trained through numerous courses over a period of time to become qualified as an ATC. The job title ATCO 3 represents the full term Air Traffic Control Officer and the number represents the specific position or type of controlling services provided by of the participant.

Table 1: Demographic profile

Interviews Conducted	Job Title	Sex	Race	Age	Marital Status	Children	Other dependants
Interview 1	ATCO 3	Male	Black	26-35	Single	2	Partially responsible for 3 siblings
Interview 2	ATCO 3	Male	Black	18-25	Single	None	None
Interview 3	ATCO 3	Male	Coloured	36-45	Single	None	Nephew
Interview 4	ATCO 3	Male	Coloured	36-45	Single	None	None
Interview 5	ATCO 1	Female	Coloured	26-35	Single	None	None
Interview 6	ATCO 1	Male	White	26-35	Single	None	None
Interview 7	ATCO 3	Female	Black	26-35	Married	2	Mother & Mother in-law
Interview 8	ATCO 1	Female	Indian	36-45	Married	3	Father
Interview 9	ATCO 3	Female	Indian	26-35	Married	None	None
Interview 10	ATCO 3	Male	Black	26-35	Single	None	None
Interview 11	ATCO 3	Female	Black	26-35	Married	2	Sister
Interview 12	ATCO 3	Female	Black	26-35	Single	1	None
Interview 13	ATCO 3	Female	White	26-35	Married	2	None
Interview 14	ATCO 1	Female	Black	26-35	Single	1	Mother & Grandfather
Interview 15	ATCO 3	Female	Black	26-35	Married	1	Partially responsible for mother

4.2.2 Discussion of results pertaining to demographic profile

The expectation for the demographic group was an even distribution of age groups from the employment age of 18 years to the retirement age of 60 years. The age of the respondents was one of the similarities. Eleven of the fifteen respondents fell in the age gap of 26-35 years. ATCs age is predominantly younger than 35 years. This is because many of them were recruited by ATNS straight after leaving school to begin their career training as an ATC. They are fairly young and as a result some of them are not married and do not have any children. Marriage and children increase family responsibilities and increase the potential for conflict in attempting to manage both (Presser, 2000). Without them the probability of experiencing work-life conflict is reduced and the likelihood of work-life balance is increased.

40 per cent of all employees are female and 60 per cent are males at ATNS (Air Traffic and Navigation Services, 2014). The majority of ATCs are males which is similar to the rest of the world's ATC industry. Additionally in male dominated industries women experience challenges which creates conflict because the job conditions which are more suited to males (Fraser, 2013). This was discussed in the literature and reported by the half of females with children at ATNS who would like more support for work-life balance from their organisation. Interview 8 added that transformation is required to accommodate the presence and the needs of women at ATNS.

Similarities in the number of ATCs with children were expected between males and females. Seven of the nine female respondents have children and one of the six male respondents have children. Child care responsibilities are expected to increase the challenges of balancing work and family (Ling, 2001). Female ATCs experienced more work-life balance challenges because they are the dominant care givers and there are more of them who have children. Interview 7

who has two children has sent her children to live with her mother because the demands of shift work interfere with her ability to be a mother.

4.3 Results and discussion pertaining to Research Question 1

Results from respondents that address Question 1 will begin with presenting marital satisfaction followed by life satisfaction experiences of shift work. Experiences related to shift work and work satisfaction will presented and discussed. Lastly the conclusion of the discussion pertaining to Research Question 1 will be covered.

Research question 1*: To distinguish the role of shift work on satisfaction with life and work*

4.3.1 Presentation and results for Research question 1

The results for Research Question 1 are presented under sub-headings: Satisfaction with life and Satisfaction with work.

4.3.1.1 Satisfaction with life

Satisfaction with life results will be presented in a discussion about marital satisfaction and life satisfaction. Marital satisfaction is included because intimate marital relationships have been identified as one most influential elements in life satisfaction (Cummins, 1996).

Results of marital satisfaction

Question:
How does your work schedule affect your relationship?

Six of the fifteen respondents in the study are married. Those who are not married provided experiences about their intimate relationships. Partners of respondents who are in the aviation industry understand it and the shift work involved. These controllers are able to receive meaningful support from a partner who knows what they experience. Those with partners who work for ATNS as well and in the same building express appreciation for a partner who understands the nature of controlling and the challenges involved with shift work. Three of the married couples were transferred together to Johannesburg from different areas. Six have partners in the aviation industry and experienced an understanding for their job demands from them. Two have partners in different industries who also work awkward hours as well and they accept and understand when respondents are away on a shift. The rest have partners who work standard office schedules. They experience a challenge of being in a relationship with someone who works standard office hours. Conflict would arise about spending time together because of their different work schedules that do not match. They struggle to find mutual time to spend together.

Seven respondents reported difficulty at times to find mutual time and experience of non-overlapping hours. Three of the six married couples can go for up to a week without spending time with their partner due to shift work although they live in the same house. However, sometimes they can see too much of each other as well which creates a balance only experienced by Interview 9. Two married woman with children have an agreement with their partners that their children take priority. Only when their children's needs have been taken care of do they attend to their needs as a couple. Interview 13 and her husband who are both in shift work have agreed to work opposite shifts in order for one of them to be at home looking after their two children. Those respondents whose partners also work for ATNS reported that in order to have quality time for their relationships they request similar shifts and off days. This

allows them to see each other at work as well as spend their free time together outside of work.

Three of the eight female respondents find it challenging to switch off their mode of control when they are in their home and family environment. They tend to use the same behaviours that make them successful controllers in their personal lives. These behaviours involve giving non-negotiable instructions, planning and controlling everything by themselves. Interview 5 expressed that her contribution to her long term relationship where she was engaged was negative. This is because she wanted everything in the relationship to go her way and is working on improving this behaviour. Interview 14 admitted that the reason why she is in her thirties and not married was because she is too controlling and black men do not like to be controlled.

The ability to maintain an intimate relationship was challenging because of the shift work demands. Marriages of ATCs are affect by the shift work particularly where there are children. The time for couples to spend together is limited because of the shift work demands and other family responsibilities. These couples make an effort to find time when they can be together with the challenges they face. They experience marital satisfaction because they work together with their partner to minimise the impact of shift work on their marriage.

Discussion of Marital satisfaction

Stress from work did not affect the quality of relationships for ATCs which is contrary to a report by Leach and Butterworth (2012) in the literature. The stress experienced from their jobs was brief and usually manageable. Controlling was only stressful for a period when they were resolving a challenging situation which does not usually last long. Once it was resolved it was over and had no influences on any areas outside of work or their relationships. ATCs experience

of shift work structure created challenges for seven of the respondents. This is in agreement with the literature reported by Simon (1990), cited by Presser (2000) in Leach and Butterworth (2012). Intimate relationships were not reported as affected by stress as suggested by Leach and Butterworth (2012). Instead more ATCs reported that their partners show support and understanding for the aviation industry and shift work because their work was similar. White and Keith (1990) suggested that married shift workers are more likely to end in divorce. Divorce is not evident in the study because the majority of ATCs are relatively younger and have not been married yet, although, they do report experiencing non-overlapping time for intimate relations. More ATCs share the commonality with their partners of working in the same industry as well as working awkward hours. This creates a mutual understanding that could act as a buffer for divorce or conflict. The commonalities could have created more items that couples interact and connect on as suggested by Barnett and Hyde (2001) which could have positive effects on their relationships.

Non overlapping shift hours were experienced by couples and affected their relationship, as suggested by White and Keith (1990). This was very evident with those who have partners who also are in shift work. ATCs were aware of this and some made a conscious effort to request shifts that do overlap with their partners. This increased the time they are able to spend together as a couple. Presser (2000) observed married couples with young children have more challenges of marital satisfaction. Two married couples with children reported they had a clear understanding in their relationship that children take a higher priority over them as a couple. This acted to reduce expectations and conflict with their partner and increase understanding and support to the shift work conditions.

Netemeyer, Boles and McMurrian (1996), Stephens and Sommer (1993) and Greenhaus and Beutell (1985), cited in Carlson et al. (2000) identified behaviour

based conflict can affect work-life balance when appropriate behaviours from one role are applied to another role where they are inappropriate for that role. This was prevalent when female ATC were behaving in a controlling manner in their relationships which they feel is inappropriate.

The research did not refer to other intimate relations other than married people. More participants of the study were not married although they do engage in intimate relations. Different dynamics may be present in these relationships than those described for married couples by the literature. Unmarried respondents with children, particularly single mothers, reported challenges with child care and dating different partners who have work schedules with regular office hours.

Marital satisfaction for shift working ATCs was not affected by stress at work. It was affected by the shift work hours which respondents have accepted and try to manage. To spend quality time together as couples they specifically arrange time for themselves around their shift schedules. Marital and relationship satisfaction is affected by shift work which ATCs are aware of. Some ATCs are actively managing the challenges of shift work and have arrangements in their relationships that they use to deal with the shift work hours. Shift work is not working for married couples because they have to go out of their way to make their relationships work. They make efforts towards their marriage in order to make it work. None of the ATCs in the study are divorced which leads to the conclusion that they experience marital satisfaction.

Results of life satisfaction

Questions:

How satisfying is the way you separate your time between your work and non-work responsibilities?

How do you evaluate your quality of life?

All the respondents reported being happy with the quality of life they have. They are satisfied with the life style they are able to lead from being an ATC. The comfort and security of their homes and the value placed on their families were the priority items that make them happy. The ability to provide adequately for their children is a satisfying element for those who are parents. Additionally, Majority of controllers reported being comfortable and relieved about not having to worry about finances. Interview 11 reported that it was comforting to have money the day before pay day and afford to eat out without waiting to get paid to do so. Others do not feel underpaid however, they would like more money.

Seven respondents would like more weekends off from work. They would like to spend the time with family and to participate in social activities with people who work standard office hours. The interference from work most commonly occurs during the weekends for these shift workers. They reported that weekends are a time when family events, church, general gatherings such as weddings, funerals and birthdays take place. They often have to miss these events if they were unable to put a request for a shift on time or do not get a swap from their colleagues. For some, it has had an impact on their social life and the social relationships they maintain. Interview 7 is a mother of two reported that she does not have a social life due to the demands of shift work and her family needs and responsibilities. Interview 12 reported that she has time in her schedule during the week however, the people she would like to spend time with are only available on weekends which is when she is often at work. Eight of fifteen respondents do not find working on weekends challenging because they are able to meet their personal life demands in the time available.

Majority ATCs reported that managing to meet their personal life demands requires planning in advance. To attend events usually requires at least two

months of notice. This demands that roster requests for shifts are made prior to the roster being released. The inability to participate in the events of the holiday season such as Christmas was one of the areas that some ATC were unhappy with. They made an effort to plan around their shift on Christmas by either spending the morning or afternoon with their families.

Discussion of life satisfaction

Respondents evaluated their lives and reported to be satisfied with them. They reported appreciation of what they did have, although they did experience challenges. Five ATCs suffer with health problems as a result of shift work such as experiencing headaches, neck and shoulder tension, fatigue, and influenza from their work lives reported satisfaction with life. Poor health from shift work may not be prevalent in the impact of satisfaction because the age majority of the respondents is below 40 years. More illnesses have been identified in shift workers over 40 years old (Muecke, 2005). Additionally ATCs are required to pass medical assessments to ensure that as long as they are working as controllers they are fit to do so. Medical checks may have also contributed to eliminating more health issues in ATC as suggested by Koller (1996). The respondents who struggled with the social challenges of not being able to attend gatherings with friends, working on weekends and holidays also reported life satisfaction. White and Keith (1990) reported that reduced social interactions for shift workers in relationships which may be the case for these shift workers with their families and friends. Wilson et al. (2007) observed that employees enjoy financial benefits and flexible hours from shift work. Financial comfort and stability allowed respondents to lead a life style they are satisfied with. Items they identified as adding value to their quality of life and increasing satisfaction are: family, homes, finances and flexible time to engage in satisfying activities. These are similar to those identified in the literature by Felce and Perry (1995).

Psychological aspects and the ability to grow was not apparent in the experiences of the ATCs. Evaluating psychology requires an expert in the field which is why psychological issues are not prevalent. Most respondents' job title is ATCO 3 which participated in the study. This tile is the highest growth possible in their career which implies that they are not expecting any growth. If they want further growth they would have to leave controlling and pursue other jobs.

The impact of shift work on their social relationships was prevalent in ATCs experiences aligned to research suggestions by Presser (2000). Availability during non-overlapping hours and working weekends interrupted the social lives of respondents. Working holidays interrupted family time particularly on Christmas, a holiday that was treasured more by respondents. The literature does not identify how much effect working weekends and holiday has on shift workers and their family time. Respondents are forced to plan Christmas with family around the shift schedule which they have learned to accept.

ATCs report on satisfaction with life although they face challenges as a result of shift work which contribute to reducing the quality of life is an indication of optimism. Dissatisfaction with one or two areas of life did not lead respondents to evaluate their entire lives as dissatisfactory. They take more appreciation and gratitude for what they do have and did not include negative aspects in their evaluation of life satisfaction. They choose to positively evaluate their lives by *looking at the glass as half full instead of half empty*. The personal time they have during the week is sufficient to engage in non-work activities. However they are not satisfied with the time allocation towards work on weekends and holidays. To deal with this they have to plan in advance for events and plan family around shift work hours for holidays.

4.3.1.2 Satisfaction with work

The presentation of results and discussion of satisfaction with work will begin with a discussion on shift work. The nature of hours of a job forms part of the job and can contribute to whether satisfaction with work is experienced or not. This will be followed by a discussion on work satisfaction.

Results for shift work

Questions:
How do you find adapting to the different shift schedules?
How has shift work affected your ability to cope with life?

The nature of shift work schedules allows time flexibility between shifts for employees. Eight ATC's have been able to participate in activities during hours that others working standard work schedules cannot. The free time allows them to pursue hobbies they like such as flying, studying, running their own business and others. When they have to work a shift during the day they view the day as split in half. They have personal time to pursue their own activities in the morning if they are working an afternoon shift or do personal things in the afternoon if they are working a morning shift. They all appreciated the flexible time from shift work. A mother of two reported that she managed to work shifts, pursue her studies, and fulfil other family responsibilities while she was heavily pregnant with the right support.

Adjusting from an afternoon shift to a morning shift is a challenge that is commonly experienced by five ATCs. There is a gap of ten hours between these two shifts which they find insufficient to rest at night. This is because time is taken up by travelling to and from home as well as having supper and attending to family needs and responsibilities. ATCs reported that this shift

arrangement is avoided where possible by the roster clerk due to the limitation of hours between the two shifts. Interview 1 reported that it is not possible for him to get enough sleep and rest well between these two shifts. He would have to exceed the speed driving to and from home and ignore his partner and two children and go straight to bed to in order to try and get enough rest.

Four shift workers have learned to survive the day at work on less than six to eight hours of sleep. They have learned to function on reduced hours of sleep due to the shift work schedules. Interview 5 described her sleeping schedule as “chaotic” and poor sleep results in tiredness. When she is tired she makes “stupid mistakes.” Interview 1 reported experiencing sleepiness at work from being tired as a result of the shift work. Three reported that to keep energy levels high at work they snack on unhealthy food which contributes to poor eating habits. Five ATC reported that the random schedules and irregular shifts create sleeping problems resulting in poor sleep and reducing the ability to rest well. Interview 2 reported to have adapted to night shifts by developing a routine where he sleeps at 1am and he has suffered fatigue from poor sleeping patterns. Interview 14 reported experiencing fatigue regularly which her doctor treats with medication and a few days off for sick leave. The rest do not have issues with sleep reporting that after working shifts for a number of years, they have learned to adapt and adjusted to them.

The use of roster requests and swapping shifts with other colleagues has assisted all the respondents in managing the shift work. Interview 3 creates his own schedule that will be suitable to his needs. He was able to engage in activities at work additionally to his role as an ATC, study and pursue business interests by requesting specific shifts and swapping shifts.

Unhealthy eating as a result of shift work was experienced by five ATCs. Others are able to maintain regular healthy eating habits by making a conscious effort

to eat healthy and pack healthy snacks to work. Being tired as a result of the shift work is a regular experience. The randomness of the shift schedules disrupted the ability to maintain a healthy life style. This occurred as result of the inability to maintain a regular work out schedule due to the shift work for three ATCs. This caused demotivation to commit to regular exercising. Interview 2 reported that at times he found that even when he was free to exercise he was too tired. Four respondents do have time and are able to work out. Additionally, they appreciate not working out during peak gym times which allows them to avoid crowds and waiting in queues for equipment. Others are lazy or do not have any interest in working out to maintain good health.

Majority of ATC in the study report being satisfied with the time off they have between shifts. Most of them are satisfied with the time away from work which they get. It gives them enough time to rest between shifts. Interview 1 reported that the time off is complementary to the nature of work he does and enables him to be a better Air Traffic Controller. Interview 4 compares the job of an ATC to a boxer who gets punched in the stomach every shift. The off days are like rests between the punching rounds. A balance is required between the days he gets punched and the days he rests. More time off is available after working a night shift. This has resulted in a preference to work the night shift by six ATCs which allows them more time away to spend with their families. Interview 1 reported that if he could choose his schedules he would choose only to work nights. The sacrifice of a long ten hour shift is viewed to be worth the time away from work they will be able to have. Interview 9 dislikes night shifts because she gets very grumpy when she has to be awake at 1am and work. She also finds that it takes too long to recover from being awake all night.

Shift work for all the ATC mothers was challenging to manage. Three of the six mothers who struggled with child care resorted to sending their children off to live with their parents. They experienced difficulty with creating a stable

environment at home and thus opted for their children not to live with them. The shift work creates a challenge of what to do with their child very early in the morning before day cares open. Additionally, they struggle because day cares do not stay open late enough to pick up their children after a shift in the evening. During night shift they also had challenges with child care. Interview 14 expressed that she is very sad that she cannot live with her son. He is used to the living arrangement with his grandparents such that he thinks it is normal because that is how is has always been. Other mothers have been able to find support with child care to help them manage the responsibilities of motherhood. Only one male ATC has children and he did not report any challenges with child care.

Sleeping problems from five ATCs and difficulty coping with some shifts such as night shift and morning shift as well as adjusting from an afternoon shift was experienced. This indicates that some ATCs do struggle with adapting to the different shift schedules. More ATCs manage to adapt to the different shift schedules. Women with children have more responsibilities which resulted in the experience of challenges to cope with their lives. Maintaining good health by eating well was challenging for five ATCs. Exercising was distracted by shift work for only three. The majority were able to exercise and eat well if they wanted to. Inability to cope with life by maintaining a healthy life style did not affect the majority of ATCs. The time flexibility during the day mid-week allows ATCs to engage in more fulfilling activities. This was the main reason that the majority of ATCs prefer shift work over standard office hours even though they experience challenges related to shift work. Majority ATCs also acknowledged that they were informed of the shift work and the nature of the job environment prior to employment which they willingly accepted.

Discussion of shift work

Dunifon et al. (2013) suggests that mothers who work shift hours are able to spend more time at home with their children. Of the six mothers, four of them have time available however their children are at school during that time. They did report on occasion the ability to watch sporting activities at their school if they had advance notice. Interview 11 reported to be able to spend more time with her children and Interview 14 does not live with her child due to shift work challenges.

Women in shift work reported having more stress at home than men do as suggested by Grosswald (2003). Findings confirmed that shift work introduces the challenges of time for house hold tasks such as cooking and cleaning as well as child care. Although mothers have assistance from helpers and from other family members, they experienced increased stress from the shift work schedules. Only one male respondent had children and did not report stress from child care and house hold tasks. Fathers in shift work leave the majority of house hold responsibilities to their partners. Mothers are still the primary care givers in many families which alleviate the responsibility from men.

Poor sleep and reduced alertness is a result of shift work discussed by Hossain et al. (2004) and was experienced by five ATCs. These respondents are constantly tired from the irregular schedules which they have to adapt to. The night shift schedules also contribute to sleep disturbances because the time that would have been spent sleeping is not available for sleep. This was confirmed by Muecke (2005) who reported increased sleepiness affects those who work random shift schedules that include night shifts.

Reports on the non-standard shift rotation inhibiting the ability to develop routine coincides with literature by Dunifon et al. (2013). Routine for mothers with

children was being interrupted by shift work. Activities such as dropping and picking them up from school and who puts them to bed were different from day-to-day. The inability to establish a routine also interfered with motivation and commitment to working out at the gym for three ATCs. Other times they would not go to the gym due to shift work or tiredness from the effects of shift work. Poor routine also interfered with healthy eating habits for some who were unable to cook regular healthy meals for supper. Regular exercise and healthy eating are recommended by Knauth and Hornberger (2003) to better cope with shift work. However, the inability to maintain routine as a result of shift work created challenges in exercising and eating healthy.

Lower income families' experience more work-life conflict and support is received from family friends, neighbour and community programs is reported by Griggs et al. (2013). Results show that more ATCs are comfortable with the income they receive which suggests that they are not low income earners. However, some of them still experience work-life conflict. Community programs and neighbours do not form part of the support reported. This suggests that these ATCs prefer other forms of support such as hired helpers.

Communicating the need for support, time management and maintaining good health are identified by research as necessary to cope with shift work (Knauth & Hornberger, 2003). Interview 11 who is a mother emphasised that women should communicate when they need help and not suffer by trying to manage everything. She has reported to be coping very well with shift work because she has a variety of means to support her. Respondents report experiencing flexibility of time during the week however, conflict with time is mostly experienced on the weekend. This is because they experience non-overlapping time that would be spent with some people who are not available. Time for events and gatherings on weekends also falls outside of the control of shift workers. Time management is not relevant to improve coping with these shift

work challenges. Some ATCs exercise although lack of routine may demotivate some of them at times. Others manage to bring healthy food and snacks to work. Some blame poor eating habits on not having a canteen and waking up to early for work to find time to prepare healthy food or going home too late to cook supper. Managing shift work with personal health is a challenge that is faced by ATCs in order to better cope with shift work.

Results from work satisfaction

Question:
Would you choose the same job again if you had a choice?

One ATC was not sure if they would choose the job of ATC again because she has studied in another area although she loves her job. Another would not choose it because as a mother she struggles to manage all the demands of her job and finds it stressful. The rest of the respondents would choose ATC all over again. They describe their job as different every day with new scenarios and unexpected events which keeps it exiting. Interview 8 has been working as an ATC for nineteen years and still finds controlling exciting. ATCs described the reasons why they would choose their jobs again with positive words. Refer to Table 2 for the quotes of the reasons why they would chose to be an ATC again.

Table 2: ATCs descriptions of their job

INTERVIEW RESPONDENT	RESPONDENTS DESCRIPTION OF THEIR JOBS
INTERVIEW 1	fantastic
INTERVIEW 3	Enjoyable and rewarding
INTERVIEW 4	Nice, he loves the job
INTERVIEW 6	Interesting, fun, there is no other job they would rather

	do
INTERVIEW 7	Happy as an ATC
INTERVIEW 8	Unique, authentic, exciting, feelings of accomplishment, it is a world a language and a lifestyle
INTERVIEW 9	Every day is different and challenging
INTERVIEW 10	A wonderful thing
INTERVIEW 11, 13 & 14	Do not think they would be able to do anything other than controlling
INTERVIEW 11 & 14	It is different everyday

The job of an ATC was experienced by four respondents as fitting their personality. They believe the right kind of person is more suited to control. The personality characters identified by respondents to fit the job are as follows: Interview 1- creativity and broad mindedness. Interview 4- not an aggressive personality but forceful and able to resolve conflict. Interview 13- her "bossy" personality, liking to control situations and taking charge is why a career as an ATC fitted her. Interview 14- describes herself as a very decisive person and one who likes to make decisions quickly, which her job allows her to do every day. Majority of respondents take pride in the work they do and have feelings of accomplishment at the end of a shift.

Not taking any work home was one of the reasons reported by seven ATC of why they like their jobs. They appreciate that when they are at home they are not required to do any work or meet any deadlines. When they unplug their headsets and leave their position of controlling the next person takes over and they are free from work until their next shift.

Respondents are satisfied with their work indicated by the positive descriptions of their job. Only one ATC did not report work satisfaction because as a mother her life is stressful from managing shift work and her family. Her inability to

balance work and family affects her satisfaction with work. Although majority of them are satisfied with their jobs there are things they would like to change. These items are: lack of consistency in procedures for incidents, poor management, management politics, working on weekends, more support for mothers in shift work and the inclusion of flexi hours which would make work-life balance easier to realise.

Discussion of work satisfaction

Mowday, Steers and Porter, (1979, cited in Scandura and Lankau, 1997) identified work satisfaction through commitment to the organisational values and objectives. Without satisfaction employee turnover is expected to be high. ATCs are satisfied with their jobs because more of them reported that they would choose the job of being an ATC all over again. They are proud of the work they do as ATCs and they described their job in a positive manner. Majority reported to have been working for ATNS since they completed school. Three ATCs reported that they do not see themselves doing anything else other than controlling. It is unlikely that majority of ATC want to leave their jobs although they do experience harmful effects from shift work and stress. Work satisfaction could be acting as a buffer to employee turnover just like the literature suggests (Van Saane et al., 2003).

Two of the three ATC who are married and are mothers with more than one child wished for flexible work hours in order to manage family demands. More work-life balance and higher work satisfaction would be experienced with flexible hours as discussed by Scandura and Lankau (1997). Additionally, longer work hours and shorter weeks with more time at home was visible with ATCs preference for night shift. Night shifts give ATCs more time at home with their families although they work longer than eight hours per shift. This was in agreement with literature by Hossain et al. (2004).

Culture as well as the climate in an organisation can affect work satisfaction, motivation and the performance of employees (Turhan, 2009). ATCs are able to manage work demands, report to be financially comfortable due to the reward system and appreciate the time off after a night shift. All the above are all indicators of a desirable organisational climate. Their unhappiness with management contributes to a negative climate. More positive aspects of work satisfaction are present which implies that motivation for job performance is still high and safety is not compromised.

Revealed by the results which is not present in the literature, is the appreciation by many ATCs for not taking work home. They were glad for this because they did not have to deal with anything work related as soon as they left their jobs. They could spend all their time off work with family and engaging in other personal activities. Additionally, they were satisfied with being an ATC because some believe that it is suitable for their personality. This may be true because in the recruitment of ATCs, a personality test is conducted as part of the psychometric assessments. This test seeks to identify those people that fit the personality identified to have greater potential for success in the job of an ATC.

The one ATC who was unhappy with her job reported experiencing challenges of stress in fulfilling her work and home role. She struggled to balance work and family responsibilities with the nature of the ATC job demands as well as the shift work. Majority of ATCs would choose their job again if they had a choice. They indicated being satisfied with their work as revealed by their positive descriptions of their jobs. With their experiences in their jobs, choosing the same job again indicates that they are satisfied and do not have any intentions of leaving. Their challenges with shift work do not impact how they feel about the work they do as ATCs. Changes they would like in their organisations do not

affect their satisfaction with their work. The challenges they experience in their work also do not impact on satisfaction with their work.

Conclusion of the discussion pertaining to research question 1

The ATCs who participated in the study do experience work satisfaction although they also experience challenges from shift work. Shift work creates challenges in their jobs, such as adapting to the different schedules. The respondents have separate perceptions of their jobs as ATCs and their shift work. Although shift work conditions may not be satisfactory to some ATCs, especially mothers, majority still find great satisfaction in the work they do. Shift work does not affect the ATCs' satisfaction with their work.

Satisfaction in the personal lives of ATCs included their marital or relationship satisfaction. Shift work brings challenges in their relationships such as non-overlapping time with their partners. Where possible, effort is made by some to find quality time together. Those who are married worked with their partners to find time together. Marital satisfaction was present for ATCs because even under the challenges of shift work, they still wanted and tried to spend time with their partners. Other aspects of life include health and sleep disturbances, social relations and family time, financial stability and time flexibility which contributed to life satisfaction. Although shift work did create difficulties and disruptions in their lives, they were more appreciative of the positive aspects that could be benefited from shift work. More ATCs preferred shift work to standard office hours. Work satisfaction plays a role in the satisfaction with life and may act as a buffer to the harmful effects of shift work. There could be other items that contribute to satisfaction with life for these ATCs that are not reported. Each individual has their own view of satisfaction which the literature and reports may not have been able to capture. All the respondents reported having a good quality of life which is a measure of life satisfaction. Shift work

disrupted the lives of ATCs however, they still maintain to have satisfaction with life and work.

4.4 Results and discussion pertaining to Research Question 2

The presentation and discussion of the results of Research Question 2 will begin with the experiences of work conflict. This will be followed by reports of family conflict and inter-role conflict. Lastly how ATCs experiences of stress from their work as well as their personal lives will be discussed.

Research question 2: *To explore how shift work conflict may affect employee stress*

4.4.1 Presentation and results for research question 2

Results for work conflict

Question:
How do you handle the demands and responsibilities from working as an ATC?

To successfully deal with the demands of their job three ATCs deal with one task at a time. They focus on what is in front of them at that given moment and resolve that issue. Dealing with one pilot at a time step by step is how they work through the challenges of their job. They realise that there is only a certain number of hours in a given day and they do the best they can at that moment in time.

The tasks required to control traffic on a normal day do not pose much of a challenge as reported by the majority of ATCs. Resources are sufficient to support the demands of work such as training and systems. Five ATCs reported

that the equipment and systems available allow them to effectively deal with the demands of their work. Two ATCs experience challenges when the equipment fails to function as expected which requires more vigilance and care. Equipment failure is an event that ATCs are forced to work through which is stressful. Bad weather also creates difficulty because it is a challenge for aircraft to fly in bad weather. It is a challenge experienced by three ATCs. Bad weather requires them to deal with pilots who are stressed by trying to avoid bad weather. This results in diversions to new routes which can create emergencies that must be managed effectively.

Four ATCs manage their job demands by following the laid out procedures because it becomes easier to perform their job. This also creates a safety net for them. In the event that something goes wrong, they know that they have done what is right by following their guidelines and procedures. Interview 11 reported that following procedures may be seen by others as inefficiency that slows down traffic however her goal is to ensure safety.

Majority of female ATCs experience conflict with pilots in their jobs. This occurs in the form of sexism. The aviation industry is dominated by males who treat female ATCs differently. Sexism is experienced from pilots when they have to receive instruction from female ATCs. Respondents reported that these pilots try to act against the given instruction under the assumption that the females giving them instruction are not fit to do so. These ATCs avoid engaging these pilots on the communication frequency and try to remain professional. Interview 11 reported that she deals with this behaviour by toughening her voice and being firm with the instruction she is giving. Interview 13 has accepted that some male pilots feel more comfortable and confident when they are being given instruction by a male ATC. In addition to the challenges of sex, Interview 7 and Interview 15 also experienced racial difficulties. Racism was not reported by any of the male ATCs.

The shift work schedule at ATNS also includes working standard eight to four shifts. These shifts would normally be assigned to those individuals who are working administrative shifts and special ad hoc projects. This gives ATCs the experience of both types of work schedules. Three ATCs reported to be working shifts that included standard office hours and two ATCs find the standard office hours more difficult to cope with. The experience of peak traffic to and from work and spending the whole day at work leaves them tired. Interview 9 reported that she would be tired at the end of the day, at home she only eats and sleeps to be ready for the next day.

Relationships with colleagues allow ATCs to better manage the demands of their personal lives and the shift work hours. These relationships benefit them in the swapping or exchange of shifts. If an ATC gives their colleague a shift swap, they are likely to return the favour when the other needs a shift swap. Interview 1 and Interview 3 have a common phrase they use called “know your customers”. This means that as an ATC you must know what shifts your colleague’s like and which ones they are prepared to swap. You should also know which colleagues will swap with you and those that will not. The other controllers expressed that they have a supportive team which they work with. It does not depend on the exchange of favours but on the cohesiveness of the team. Interview 12 who identified her colleagues as young (under 45 years old) and of similar age expressed that this allowed them to be able to identify with each other’s issues. She also added that their similarities allowed them to understand each other and be supportive with shift work demands and giving each other swaps where needed.

Five ATCs reported to be unhappy with management in areas that interfere with their ability to do their work. The rest did not report unhappiness with management. They experience poor utilisation of information or feedback from

their employer. They reported that when the organisation has received feedback of the areas of improvement from employees, action is not taken to do anything. This causes stress and frustration for employees who have to continuously endure a situation that can be improved by management. Interview 3 suggested that ATNS should use a bottom up approach to improve work systems. The ATC who is the expert and most familiar with their role should make suggestions to improve work efficiency and safety to their manager. Furthermore he suggested that the role of the manager should be to implement the changes that will improve the job of an ATC.

Three respondents avoid the concept of having to think about the responsibility of many lives. To cope with that responsibility and perform effectively in their jobs they use analogies. Some analogies given are: controlling metal while talking to a pilot and playing a game with different pieces with which they have to win. Interview 5 explained that if she had to view each target she was controlling as three hundred lives in her hands it would drive her mad.

To manage the demands of their jobs, respondent use a step-by step approach resolving one task at a time. They also use the training, equipment and systems which provides them with the ability work efficiently. Following designed procedures for work also allows them maintain the safety regulations according to the rules laid out.

Discussion of work conflict

The training for ATCs in South Africa is intense and follows similar stages as discussed in the literature by Collins et al. (1990). Majority of the respondents were recruited after they finished school and attended classroom learning, simulated exercises and training on the job with an instructor. The training was reported to be sufficient and enables them to adequately perform their jobs. The

skills they learned are a useful tool to manage the demands and challenges of the job.

The literature suggests that the automation of the job of an ATC relieves pressure from dealing with high traffic volumes and creates boredom (McGee et al., 1997). The experience of boredom was not reported by respondents. They are able to manage the demands of their jobs with the available systems. At times they experience equipment failure where systems do not function as expected in order for them to perform their jobs. They experience greater challenges and stress in their job as a result of system failure. Automation and work systems are necessary for respondents to perform their jobs efficiently and safely. Poor functioning equipment and systems increase demands on the job that are a challenge to manage and increase risk of safety. Automation increases efficiency and safety, reduces stress and has not been reported to cause boredom for these ATCs.

The concept of flexible work environments is growing and is beneficial in eliminating the challenges of work and family conflict, and create balance as research has shown by Scandura and Lankau (1997). The ATC environment unfortunately has not progressed as far as allowing employees to be able to work from home. Mothers would like flexible work hours however, that also is not present. Flexible work environments in the aviation industry may compromise discipline and safety. Aviation is very strict with procedures put in place to ensure safety that could be overlooked if ATCs are allowed to work from home where there could be distractions.

Hilburn (2004) suggests that the role of an ATC has cognitive complexities that make dealing with the job of an ATC challenging. ATCs are able to manage the complex cognitive demands of their job successfully. It has become easy for them to perform their jobs because they have been working as controllers for

many years. They have adapted and developed skills that allow them to perform successfully over the years. They confront their tasks step by step. The training they have received also enables them to manage. They also follow the procedures and policies laid out that provide guidelines to safety. This allows them to confidently work when they know they are working by the rules. This also serves to protect them in the event of an incident.

As the research suggests, females who work in male dominated industries experience challenges of work-life balance (Fraser, 2013). It did not identify that in addition to work-life balance challenges they also experience sexism and racism in male dominated industries. Female ATCs experience of sexism from some male pilots who they give instruction to. The experience of racism by a minority occurred because the aviation industry has been predominately dominated by white people. Interview 15 reported that she works extra hard to prove her capabilities as a women and a person of colour. These ATCs have learned to deal with this treatment and behaviour in order to avoid a compromise of safety. Conflict is also experienced when standard office hours form part of their shifts in the form of administration tasks. Adjusting to standard office hours is challenging because they report that it makes them very tired. They are not used to these hours, which is why they struggle to adjust and prefer shift schedules.

Other areas of work conflict that are not present in the literature include support from colleagues allows ATCs to manage shift work better. They are able to swap shifts with them and eliminate work conflict which an individual has when they need to do something personal during work time. Conflict was also experienced when they have to deal with bad weather which was stressful. Additionally, ATCs avoid thinking about the number of lives they are responsible for by making analogies. This is a coping mechanism they use to avoid being

overwhelmed by the responsibility of their job. It also reduces stress for them not to think about how many people could die if something goes wrong.

Dissatisfaction with management with the inability to utilise feedback to improve work causes work conflict for some ATCs. The inability to improve work processes where they have been identified creates unnecessary inefficiencies, frustration and may reduce motivation for work. Failure to improve where solutions have been found could also result in a compromise in safety by doing things the old way and not adapting to changes. Management behaviours that are not supportive to their work cause conflict in the jobs of ATCs.

Challenges respondents face that create work conflict in their jobs is inclusive of management behaviours, bad weather, equipment failures, sexism, racism and managing shift work for women. The respondents in the study are able to manage their day-to-day job demands with the use of work procedures, training and information systems and equipment. The support for shift work from their colleagues through swaps allows them to manage. Although they face challenges they are able to effectively manage the day-to-day challenges of their work as ATCs.

Results from family Conflict

Questions:
How do you feel about the time you spend with your family?
How do you manage to meet your family responsibilities?

Relocation to a different airport is a common experience. Six ATCs have been relocated to Johannesburg and left their family elsewhere. Two respondents have been relocated back to Johannesburg closer to family. Interview 8 has

been working for ATNS for twenty years and has been transferred five times to different airports around South Africa.

Majority reported that family events and time for them is planned around the shift work schedule. In order to be able to attend family events advance notice is necessary. This allows respondents to put in a roster request or swap with a colleague for a specific shift. Interview 1 and Interview 7 have families that do not understand the work they do and the demands of shift work. They experience resentment and rejection from them when they are unable to meet family expectations. They are seen as though they do not want to participate in family activities and are using work as an excuse. This happens because they have to work on weekends, which is when most family events take place.

Others receive understanding and support from their families who have accepted the demands of shift work on weekends. Their parents become a substitute at parenting children of shift working ATCs. For the night shift, two ATCs have parents who assist them by coming over to sleep with their children when they are at work. They also relieve them of some of the home responsibilities. Parents also step in as support during the school holidays when children are at home the whole day. They watch over them during the time when they would have been at school. Three of the six ATC mothers report their mothers have lived with their children due to the demands of shift work. This has been the case for married and unmarried female ATCs. One female ATC with two children decided that both her children should live with her mother. Later she and her husband were able live with their older child who started school. Soon she hopes to be able to live with her younger child. She reported that each year her family experiences changes as to which members live where caused by managing the shift work.

Feelings of guilt are expressed by some female controllers with children. They question their role of motherhood because they are often absent from their children's lives. The reliance on others for assistance with the responsibilities that would normally lie with them is another reason that causes guilt. Interview 13 feels guilty about sending her children to day care even though it would make her life more manageable. She does not want to shift the child care responsibilities. Interview 15 feels guilty when she has to leave her baby overnight with her helper to work a night shift. Interview 7 and Interview 14 report that they feel like they are parenting from a distance and parenting through other people. Interview 11 has accepted that as shift working women they do need help in order to create a balance. She has two children and a live-in helper, as well as supportive husband and friends who help out with baby-sitting. Her parents also take the children on weekends and school holidays to assist her. Furthermore she advocates that women should ask and communicate the need for help and support in order to manage the challenges from shift work as suggested by Knauth and Hornberger (2003). Interview 13 has consciously decided that she will not feel guilty about buying take away for her family when she is unable to cook supper. She also cooks supper in the morning before she goes for her shift in order for the food to be ready when she is at work and tries not to feel guilty about leaving dishes in the sink.

Shift work provides majority of respondents with time flexibility mid-week during the day. This time is sufficient to spend with family members who are available. A challenge is experienced with those family members who are not available when shift workers are. They miss family members who work standard hours and children who are at school during the day even though time is available. Working on holidays interrupts family time which cannot be avoided. Three respondents described their Christmas plans to include a work shift and celebrations with their families are scheduled either before or after a shift.

Interview 7 reported that she hosted a New Year's Eve party at her house which she had to leave half way in order to work a shift.

Discussion on family conflict

Netemeyer, Boles and McMurrian (1996), Stephens and Sommer (1993) and Greenhaus and Beutell (1985), cited in Carlson et al. (2000) discussed strain, time and behaviour based conflict were present in the study as part of work-family conflict. Respondents reported shift work plays a role in time based conflict when ATCs cannot spend time with family and friends on weekends because they have to work. Strain based conflict is experienced by those with fatigue and health problems, such as headaches as result from working shifts. The shift work causes strain in the form of illnesses which also affects them in their personal life. Behaviour based conflict is evident when female ATCs display controlling work-appropriate behaviours in their intimate relationships where they are not appropriate. However, there are cases where the presence of behaviour based conflict is expected and respondents make a conscious effort to minimise it. Interview 8 reported that she lets others make decisions and tries not to manage at home. This behaviour based conflict was only reported by females. Society expects men to be dominant and controlling and is not accepting when women are. Perhaps men also have behaviour conflict which they are unaware of because it has not been pointed out by society.

The following experiences of family conflict were reported in addition to what has been presented in the literature. Six ATCs were relocated to Johannesburg away from family and two who were relocated back and are closer to family. Relocation away reduces the support available from family and creates family conflict from the inability to see them. Demands of travelling are created in order to maintain family relations. Adjusting to moving to a new area and a new working environment presented challenges to Interview 13. It is more difficult to

relocate an entire family because relocating one employee affects other peoples live. This means their partner and children must also move and have to adjust to changes. Disrupting lives with moving may result in the family being unhappy in the new place.

Family rejection was experienced when respondents were unable to attend family events because work takes priority for these ATCs. They are only able to plan to meet family responsibilities after work time has been established on a roster. Flexible time is available during the week however, due to non-overlapping hours some family members are only available on weekends. Without advance notice some family events cannot be attended by ATCs. Not all family gatherings can be prepared for in advance which is a challenge for them. In the African culture funerals take place during the weekend at short notice. If ATCs were scheduled to work and are unable to get a swap from their colleagues, they are unable to attend such important events. This creates conflict between them and their families who expect them to be present. The job of an ATC deals with the safety of lives. It forms part of essential services. This necessitates that work priority is higher for ATCs than for others whose jobs do not form part of essential services. They have come to accept that they have to work weekends and holidays like Christmas.

Mothers who are away from their children feel guilty. Missing significant moments of their children's life due to work demands is a challenge for them to deal with. They are forced to leave the responsibility of child care to others which creates guilt. In society mothers are the primary care givers and are expected to take care of their children and families. When they are unable to do so these mothers feel guilty for depriving their families of what they should have.

Shift working mothers rely on support from others. Some send their children to live with their parents and become absent parents which makes them unhappy. They are unable to provide a stable home environment due to the awkward work hours. The shift work creates an unstable home environment particularly for single mothers. Leaving very early, coming back late and being away over night for a shift requires someone to take over child care responsibilities when they are not there. Without partners it is impossible for some single mothers as reported by Interview 14.

Results of inter-role conflict

Questions:

How do you manage your work schedule demands and your family life demands?

How is your life structured to accommodate these roles in terms of availability of support?

Majority of respondents reported that they are usually able to leave work and to forget about the shift they have had. As soon as they leave the work premises they “switch off” all things work related. They are also usually able to leave personal life issues outside of work and focus on their jobs. Interview 12 stated that they are indirectly trained to separate work and non-work issues. Interview 13 reported that as soon as she plugs into her head set to communicate with pilots, the only thing that exists is her and the aircrafts she is controlling on her screen. Everything else in the world is blocked out when she is plugged in. Sometimes difficulties in focussing on work are experienced when issues in their personal life are more serious. Interview 1 experienced personal issues such as leaving a sick child at home and serious arguments with his partner does interfere with work. This is difficult for him because he fears that the illness of the child may get worse while he is at work.

The majority of ATCs reported that an abnormal event at work that could have impacted on the safety of flight results in taking work issues home. The time it takes them to recover from it differs from one individual to the next. They also reported that there is an Employee Assistance Program (EAP) in place that employees are able to use which is provided by ATNS in the form of counselling to support employees. ATCs also reported that there are times when they experience personal issues that may influence their work ability. In this case they inform their managers of the issue they are dealing with and advise them that they do not feel fit to manage traffic. Their managers arrange for someone else to work and remove them from the position which may threaten safety. Interview 15 reported that she does not go to work when she does not feel 100 per cent. She says she used to go to work when she had a flue because she didn't consider it a serious illness. However, now she takes sick leave because she realises that her illness could interfere with her ability to perform effectively. To avoid a compromise in safety she takes sick leave.

Support from the organisation for shift workers is through the effort made to try and avoid, where possible, to roster a morning shift straight after an afternoon shift as reported by Interview 9. The number of hours between the two shifts results in reduced hours of sleep which has the potential to leave controllers tired prior to the morning shift. They also reported that they are given at least one long weekend per cycle of 28 days. They have a request book system which is another way to try and accommodate their personal life. If they have engagements to attend and are aware of them in advance they can make a request for a specific shift or a day off. They also get 8 off days per cycle to rest. They also reported their organisation has also embarked on a Woman's Development Program (WDP) which some female ATCs have been able to benefit from. Interview 11 has attended a course on emotional intelligence. This course has helped her to better manage stress in her life and improve the

manner she handles the demands and responsibilities she is faced with. Five ATCs reported that their managers go beyond their job requirements to accommodate and support personal needs where possible for the employees who report to them. The rest of the respondents have to manage their personal life demands themselves. Interview 15 reported that there is only so much she can share about her personal life with her manager and other things are very private in order to get support. She also reports that she does not want to seem unable to do her job by asking for special favours as a mother to manage family responsibilities.

Eight of the fifteen respondents have hired helpers to assist them in their personal lives. Helpers also formed support in order to manage conflict between shift work and family life. Helpers are in the form of fulltime live-in every day help also available after hours, help during office hours in the day, part time help on specific days or ad hoc as well as au pairs. Helpers were reported to perform a wide range of activities such as child care, cooking, cleaning and laundry. Being too tired to clean was experienced by Interview 5 and Interview 14 who preferred to use their free time to rest or engage in other activities. However, some respondents choose not to have helpers because they don't want to live with or leave their children with a stranger. Interview 15 realised that when she had one helper for child care and household domestics the helper struggled to manage both duties. This led her hiring two helpers, one fulltime live-in helper for child care and a part time helper for the household domestic duties. She admits that she doesn't like having to live with a helper, however that is the best way for her to manage the shift work demands. Others have support from extended family, partners and friends who helped with the management of inter-role conflict by alleviating some family responsibilities from ATCs.

All respondents reported to use swapping and roster requests to manage shift work and personal life demands. Two of the seven mothers reported that their colleagues showed support to them as mothers for their family needs. They would try to assist with swapping shifts to allow mothers to meet child care responsibilities. Interview 7 reported experiencing difficulties beginning from pregnancy. As ATCs they are not allowed to control aircraft after thirty weeks of pregnancy. She described this as “torture, and like sending a child to a play room and telling them not to touch anything.” Majority of the mothers would like more support from their organisation with challenges related to child care and shift work. They suggested programs such as flexi hours, a mother’s roster and a day care which could be implemented.

Behaviours that are more suitable to the role of an ATC are transferred to the personal lives of respondents. These are seen to be inappropriate to their families or their relationships. Some of these work behaviours cause conflict outside of work. However, Interview 8 reported that she does not want to make any decisions at home and Interview 13 makes a conscious effort to avoid controlling behaviours at home. Other ATCs display two personalities, one suitable for the job which is controlling, instructive and individual decision making. The other for their personal lives is being kind and negotiable. Interview 11 changes her personality to be firm and strict in order to deal with work. After a challenging day caused by an abnormal event at work some respondents take those negatives emotions home and vent to their partners and families. Interview 9 described it as taking adrenaline from work to the home environment. She added that work events can create a negative or positive adrenaline high that takes a while to ware off which she takes home. She often takes negative adrenaline home after a bad day. Interview 2 experiences adrenaline problems after a shift that ends in the evening. He reports that he cannot sleep when he still has an adrenaline high from work.

Discussion on inter-role conflict

Hochschild (1997, cited in Tausig and Fenwick, 2001) identify inter-role conflict to be a conflict of time and the perception of balance is increased when employees have control over their time. This was prevalent in the experiences of majority of the respondents where they do not have control over their own time to do what they need to, a conflict over time occurs. When an ATC has to work on a weekend and they prefer to use that time with family, conflict over time occurs. Those ATCs who want flexi hours want to have control over their time in order to create a work-life balance and avoid work-life conflict. Making roster requests prior to the issue of the roster allows ATCs to control the time to decide how their time should be distributed in order to meet their needs. Control over time eliminates the conflict of time to be spent in the different roles for these shift workers. The interference of one role on the next is also reduced. Lack of control over time for the different roles creates role conflict for ATCs.

Managers that care and support employees were identified in the literature as positively affecting employee commitment, productivity and reduced turnover (Wayne et al., 2006). Those who experienced supportive management behaviours reported that it was some managers who took it upon themselves to go the extra mile for them. Not all managers displayed this behaviour however, support was prevalent in the form of assisting with obtaining swaps, granting requests and support for mothers with child care demands. These management behaviours contributed as a work-family intervention to minimise conflict between work and family. However, Interview 15 will not utilise this form of support because she does not want to give her manager and others the impression that as a woman of colour she is unable to manage her job and personal life. This prevents her from accessing her manager as support to manage work and family.

Aiken et al. (2001) suggests that work-life balance for women must be considered in the work force because they are responsible for the house hold and child care. Additionally, the nature of the support will determine whether shift work is satisfactory or not. Interview 11 with two children who has support from her manager, colleagues, friends, parents, a full time helper and her husband is very satisfied with shift work. Men in the study did not report any experiences of work and family conflict. Perhaps because more of them are not married and do not have children. Children bring additional challenges to dealing with work and family responsibilities (Presser, 2000). Support for women in the form of hired help is prevalent in South African society. Helpers assist with a wide range of responsibilities ranging from cooking and cleaning to child care. They are able to step in when the mothers work night shift and take over night time duties at home when mothers are away. Other ATC shift workers do not want helpers and prefer other forms of support. As the literature suggested, different forms of support are suitable for different individuals (Costa, 2003). This is because people have different needs of support for their lives as well as different preferences. Some respondents do not want helpers because of cultural beliefs and do not want strangers in their house when they are not there.

White and Keith (1990) suggest that shift work can have effects on sleep, health, and mental wellbeing, social as well as family relations. All the above has been experienced by some ATCs. This includes poor sleep from poor adaptability to an irregular schedule. Poor health from poor exercise and bad eating habits due to shift work challenges. Mental wellbeing effects from stress of their jobs. Social and family distractions from the inability to attend family and social events, particularly on weekends, were prevalent. ATCs are exposed to two or three night shifts in a 28 day cycle. Literature suggests that prolonged exposure to shift work factors such as night shift is harmful (Costa, 2003). Minimum exposure and the right conditions may result in satisfaction. A night

shift was the most preferred shift by ATCs in the study. This is similar to literature by Hossain et al. (2004) that suggests employees prefer longer work hours and more time away from work. Most ATCs still prefer to work night shifts even though they may experience harmful effects. The time off and the flexibility to engage in activities during the day is one reason for preference that was common to most ATCs.

Disruption of the body's circadian rhythms increases sleep effects and fatigue (Dinges, 1995). ATCs reported that poor sleep affected them on those days when they need to adjust from working an afternoon shift to a morning shift due to fewer hours between shifts. However, they added that this schedule is avoided where possible. The exposure to random shift schedules and adjustment to them was challenging as stipulated by Dunifon et al. (2013). Fatigue was reported and treated medically. It did not occur during the night shift as literature suggested which could be catastrophic. Night shifts have a break of up to four hours which ATCs can use to sleep if they feel tired. Fatigue can be avoided on night shifts with a break to rest.

Barnett and Hyde (2001) suggested that duel income partners have similar experiences which facilitate communication. This was present with ATCs who have partners who also work in the aviation industry or jobs with abnormal hours. They were able to meaningfully engage about their work which they both understood thoroughly. Support for their work was provided by an understanding partner. Interview 2 and Interview 15 reported that they have the advantage of being able to receive meaningful advice from their partners who also work in aviation. There was no evidence in the experiences of women of how being involved in multiple roles benefited them as suggested by Barnett and Hyde (2001). Instead they experience insufficient time to fulfil their roles. Interview 8 does not to work out because she would like to spend that time with

her family. Interview 7 is unable to have a social life because she cannot find time in her life which also indicates role overload on these women with children.

The compensation theory as suggested by Grosswald (2003) that work and family complement each other may be present in the lives of ATCs. More shift workers in the study experience work satisfaction from working as an ATC with challenges from shift work. The work satisfaction plays a positive role that makes them happy in their lives. This contributes to life satisfaction. The impact of problems and challenges in their lives is reduced. Satisfaction in the job compensates for the lack of satisfaction in other areas of their lives.

Negative spill over is reported more than positive spill over (Grzywacz et al., 2002). Negative spill over was reported by most ATCs when abnormal events at work occurred which affected them emotionally when they were at home. There are no reports of positive spill over where ATCs benefited from aspects of their job in their personal lives. Perhaps this is because negative information is seen to be worth reporting. When there is a problem it may have an overwhelming effect that puts it at the forefront of their lives and it is told to others more often. People have the view that if all is well there is nothing to report. Bad news is shared more often than good news which may be the reason why negative spill over gets more broadcast.

Ashforth et al. (2000) discussed boundary management theory that describes the separation of work and family which ATCs reported to be able to do. They describe that when they plug in to control they do not experience any disturbances from issues that are not work related. ATCs are expected to have situational awareness of numerous activities in their work space (Endsley, 1995). ATC report they constantly need to be engaging with different elements, understanding information and solving problems in their work environment. They realise the elimination of external influences on work is essential in order

to reduce distractions that can affect safety. ATCs understand that they need to separate work and family issues as best as they can in order not to be distracted at work. When personal issues distract ATCs, they know that they should advise their managers. They should not sit in the controlling position if they will not be able to focus. To maintain safety, boundaries between work and family are necessary which eliminate distractions from non-work issues as far as possible.

Organisations should play an essential role to support employees in eliminating work-family conflict and ensuring work-life balance (Carlson et al., 2009). Poor management experienced by ATCs affects their work and impacts on safety. Managers are responsible for creating a work environment that promotes safety. Issues of inter-role conflict disrupt ATCs and their work which managers must handle. Managers must also ensure that the work environment promotes and enables ATCs to effectively perform their jobs.

ATCs are able to separate the demands of their work and family life on a day-to-day basis. Only when they experience an abnormal event at work or at home they struggle to separate the two. They all make use of swapping as well as requesting shifts and some have additional support from their managers to handle their schedule demands. The most common form of support for shift work that ATCs used is in the form of hired help, partners and family members were also used particularly for child care. Work schedule demands impacted on social and family relations which most ATCs deal with by planning in advance swapping or ultimately not attending events. ATCs experienced inter-role conflict where shift work created difficulties in their personal lives. They use the different support forms they preferred to manage the work schedule demands.

Results of stress

Question:
What type of stress do you experience in your non-work life?
What type of stress do you experience from your job?

Air traffic control is experienced as a stressful and demanding job. Experiences of stress are from abnormal events, are brief and do not occur all the time. Stress lasts from a few minutes to an hour or two when dealing with the stressful event. Workload is manageable however, challenges dealing with weather creates stress. Inefficient procedures, systems and equipment failure as well as management behaviours are also stress contributors. The responsibility of safety for other people's lives is difficult to deal with. Making a mistake on the job is stressful because it puts other people's lives at risk. Some ATCs do not find their job as stressful because they have experience from doing it for many years.

Some respondents reported that they do not experience any personal stress. Personal stresses others experience include car trouble, financial stress, inability to attend events and stressing about not being married. Family and extended family were also contributors to stress. Mothers stress about the inability to meet the needs of their children. Inability to attend family gatherings and important events also created stress. Arguments with family members and partners create relationship stress. As parents of respondents get older many suffer from ill health. Illnesses such as cancer and heart conditions can cause stress in their family lives.

Stress about the future in relation to children and getting older also appeared in the personal lives of female ATCs. They worry about the future and them getting older. Interview 5 worries about not having children at her age and that

she is getting older. Additionally, she feels that the stress she experiences on her job contributes to decreasing her chances of having a baby in future. Interview 8 worries about her health because she does not have enough time to work out due to work demands and personal life demands. This will make her an old mother at 45 years when her daughter is 10 years old. Women experience stress from fears of the future and the ability to have children or effectively be mothers as they get older.

Physiological health effects of stress are experienced by most ATCs in the form of poor sleep as a result of the shift work demands. Headaches and shoulder tension are experienced from the demands of the job. Influenza is also experienced due to weak immune system from the effects of shift work by Interview 4.

In order to cope with these stressful effects on their lives respondents choose constructive and destructive coping mechanisms. The destructive coping mechanisms could be addictive behaviours such as too much alcohol, smoking and sex as reported by Interview 14. Others reported coping mechanisms such as counselling, praying and taking walks.

Discussion of stress

Boles et al. (1997) recognized that work-family conflict is related to stress. The inability to manage work and family may cause stress for employees. Stress is experienced by ATCs when they are rejected for prioritizing work and are unable to meet family expectations. Role conflict is related to stress, and this was experienced by the majority of mothers who are unable to fulfil their parenting role after hours because they are fulfilling their work role as an ATC. Majority reported that they were satisfied with their jobs. The interaction of the different demands on an ATC may cause stress Boles et al. (1997). This was

reported by six ATCs who suffer from tiredness and fatigue. They experience poor sleep from the difficulty of adapting to shift work and the inability to effectively perform the roles of their personal life and work life as suggested by Westfall-Lake (2000). This stress has a physiological effect on their bodies in the form of fatigue. Fatigue from shift work was commonly experienced by Interview 14 who also experienced the job of being an ATC as stressful. Work-family conflict can be a cause of stress (Ashforth et al., 2000). This stress may cause illnesses which can have an effect on life satisfaction. Managing work-life balance can improve the quality of life and satisfaction for shift workers.

Stress is normal in the job of an ATC (Turhan, 2009). Interview 10 reported that he has become used to managing the demands of his job which makes it easier now. Others reported that the stress experienced on the job was usually brief. When they experienced an abnormal event that can affect safety is when they would experience stress. It revolves around risk of safety and the fear of losing human lives. Interview 14 fears her actions in her job that could result in the death of people and being jailed for manslaughter which causes her stress. The development of regular illness has become a norm for some. Interview 12 and Interview 14 regularly expected to suffer from headaches due to stress. Interview 4 regularly suffered from influenza as a result of stress and poor sleep. Respondents have learned to live with the stressful effects of shift work and the job of being an ATC.

The literature identified work load as a stress factor in ATCs (Turhan, 2009). Experiences of work load from the respondents were different to the literature. They reported that work load is manageable. Although OR Tambo airport, where they work, has the most traffic in South Africa they are able to manage the work load. This is because the airport design has limitations and restrictions to the capacity of aircraft it can handle. Additionally, ATCs are able to control the number and speed of the aircraft which they manage. Respondents

reported that if there are too many aircrafts as ATCs they can control them by making them wait or “hold” until it is more suitable for them to land or depart. ATCs additionally reported that their jobs were exciting, challenging and different everyday which implies that they are not boring.Turhan (2009) additionally suggested that the reduced work load for ATC creates boredom and decreases safety which was not true for the respondents. Their ability to manage the work load indicates the job stress is at a level that most of them can manage and experience work satisfaction without boredom.

Three ATCs do not experience personal stress. This is because they are able to manage those factors in their lives that would cause them stress. They are able to manage and balance their work lives and personal lives because they take control and responsibility over the events and activities in their lives. Women with children experience more stress from poor work-life balance than men because they are responsible for managing the family demands as well (Ahmad et al., 2011). This created family conflict which also becomes stressful to the majority of mothers. Non overlapping time causes relationship stress with other family members when ATCs are unable to attend family events due to shift work demands.

Work conflict in the form of management behaviours which results in inefficiencies was experienced by five ATCs. Broadribb (2012) identified management failures as the cause of accidents. This is because managers are responsible to ensure the elimination of hazards that can distract work as well as design effective shift designs that result in the least possible disturbances to and discomfort for employees. Work-life conflict experienced by shift workers is stressful and can have the potential to affect work (Broadribb, 2012). Management should provide a work environment that is conducive to the job. Managers’ inability to ensure a work environment that is supportive to work can increase the risk of safety. When ATCs struggle to adjust to shift schedules it

disrupts their ability to function effectively and the risks to safety are increased. This is aligned a study by Muecke (2005) of negative shift work effect on employee performance. Interview 5 reported that she has poor sleep as a result of adjusting to the shifts. When she is tired at work she makes “stupid mistakes.” Mistakes can cost lives in the air traffic control industry. This is displayed in the literature by figure 2 which is the Swiss cheese model. It describes how management inefficiencies, together with ATC problems form unsafe acts and creates a gap where an accident occurs. Managers should be the first barrier to unsafe acts by continuously improving the safety of the work environment.

Stress for women was discussed in work-life conflict where the shift work makes it challenging to be effective care givers. Stress that ATCs experience in their work life relates to challenges of managing the effects of shift work schedules in the form of illness. Other items which ATCs reported to be stressful were discussed in work conflict such as weather challenges and challenges for women where pilots do not want to follow instructions. Those that reported stress in their personal life, the majority was from illness of their parents and children as well as conflict with others. Work load is manageable by most ATCs and does not usually create stress.

4.5 Summary of the results and discussion

Interviews were conducted with shift workers who are Air Traffic Controllers (ATC) at Air Traffic and Navigation Services (ATNS). Respondents shared their experiences of shift work and challenges as well as benefits. Their interaction of shift work as an ATC and work satisfaction, to which respondents reported to like their jobs although they experienced challenges. Shift work reduced the level of social relations that respondents were able to engage in due to non-overlapping time. The interaction of shift work with marital or intimate

relationship satisfaction described the support from partners and the limited time available that shift workers have with their partners. Respondents also reported how shift work in the life of an ATC ultimately affects their satisfaction with life.

Work conflict was investigated in ATC shift workers where respondents describe how they handle the demands of their job. The presentation of family conflict uncovers how the awkward shift work hours interacted with time normally assigned to family. Experiences of inter-role conflict between the work role and family role were uncovered. Additionally, support for shift work also contributed to the level of inter-role conflict. Lastly, the interviews uncovered the experiences of stress in the lives of shift working ATCs.

Challenges from shift work experienced by an ATC in their work environment resulted in work conflict. Insufficient time to meet family demands as a result of shift work created family conflict. Difficulties for ATCs to manage both work and family roles created inter-role conflict. Support for managing work and family alleviated inter-role conflict. Where support was insufficient, stress on an ATC was the resulting outcome.

Working shifts and the job of an ATC is stressful. Inability to engage in family activities because of shift work causes stress. Managing both work and family roles is stressful for mothers particularly. Relationship stress was experienced as a result of insufficient time for couples to spend together. All the difficulties experienced as a result of shift work affect life satisfaction. Shift work difficulties can cause stress and have the ability to reduce life satisfaction for ATCs.

4.6 Conclusion

The shift work effects on ATCs were explored. The literature as well as the experiences of respondents formed part of the discussion. Shift work effect on satisfaction with life and work was revealed. They indicated satisfaction with their jobs as ATCs. In their intimate relationships non-overlapping work hours created challenges. Shift work created positive effects on life such as flexibility of time to engage in different activities during the day. ATCs also experienced difficulties from shift work that effected their life such as poor sleep. Although challenges were experienced, respondents reported to be satisfied with life by indicating that they experience good quality of life.

Conflict from shift work and its effect on stress was also explored. Stress was experienced as a result of conflict in different areas of life for ATCs. Conflict was reported in the work role and in the family role they participate in. Work-life conflict was prevalent in the form of inter-role conflict where ATCs experienced difficulty in participating in both work and family roles effectively. They experienced challenges from their work life that made it difficult to participate fully in their personal lives. These challenges were stressful to manage where support was insufficient. Stress was experienced by ATCs as a result of shift work.

5 CHAPTER 5: CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

The research objective is to describe work-life balance for those employees that are involved with shift work in the aviation industry. Qualitative research method was applied and a case study was conducted at ATNS. Semi-structured interviews were used to interview fifteen Air Traffic Controllers (ATCs). The study was conducted to uncover the following research questions:

Main problem

To identify the effects of shift work on work-life balance and explore how shift work may interact with employee satisfaction and stress

Sub-problems

Sub problem 1: To distinguish the role of shift work on satisfaction with life and work

Sub problem 2: To explore how shift work conflict may affect employee stress

The results of the study will be summarised as conclusions in this chapter. Further recommendations based on the findings of the study that promote work-life balance are discussed. Suggestion areas for future research will be followed by limitations of the study and finally a conclusion will end this research.

5.2 Conclusions of the study

Training, which ATCs undergo in order to prepare them for the challenges of their work environment, allows them to manage their jobs effectively. They also reported a fit between their personality characteristics and their job that makes them successful in it. They handle air traffic by following the procedures laid out with a step by step approach working with one pilot at a time to resolve conflict with air traffic. They are able to handle the day-to-day tasks of their jobs.

The shift work involved in the job of an ATC requires them to work irregular hours that would normally be spent on other activities outside of work, probably at home. Nonstandard shift rotation created difficulty in establishing routines. When an afternoon shift is followed by a morning shift there is a 10 hour gap in which ATCs must use to sleep and perform any other needs. Insufficient sleep causes tiredness. The inclusion of a shift that follows standard office hours in the shift schedule as administrative shifts is more challenging to adjust to for shift workers. Adapting to certain shift schedules creates challenges and poor sleep results. Working a night shift was preferred by most ATCs because of the time off they are able to spend at home with their families although they may experience challenges recovering from it.

Time flexibility is experienced during the week as a result of shift work. ATCs are able to better manage their personal needs and engage in activities that would be more difficult to do if they worked standard office hours. During the week they experience work-life balance. Shift work on the weekend and on holidays interferes with personal lives of ATCs when they have to work. They prefer to spend this time on family and social activities as well as attending events. In the South African culture events are reserved for weekends when people are expected to have free time to allow them an opportunity to attend.

These events include weddings, funerals, and family gatherings. ATCs work most weekends which creates work-life conflict in the weekend. In order to ensure attendance to any event they need advance notice which is not always possible. Inter-role conflict where work interfered with personal life demands was reported to cause stress.

The personal health of some ATCs was compromised by the shift work and job demands. Random shifts interrupt routine and reduce motivation to maintain healthy eating habits and a regular work out pattern. Shift work effects on health manifested in the experience of illness by some ATCs which is a form of stress on the body. Illnesses such as fatigue, influenza, headaches as well as neck and shoulder tension were experienced.

ATCs preferred to utilise employed help as well as their parents to assist them manage their family responsibilities. Parents who understand step in to assist with child care responsibilities. The involvement of help varied according to their needs. Some have help once a week to assist with a few house hold tasks and others have live-in helpers who are present every day and perform all house hold tasks including child care. Live-in helpers provide the most support which reduces the experience of work-life conflict.

Although challenges at work were experienced by ATCs they indicated satisfaction with their job. They experience feelings of accomplishment and pride for the work they do. Although they experience challenges at work in the form of work conflict they are satisfied with their jobs. Not having to take any work home and not having deadlines in their jobs contributed to work satisfaction.

Relationships of these shift workers were difficult to maintain due to the shift work. Non-overlapping hours between them and other people impacted on their

ability to spend time together. Relationships with family, friends and their intimate partners were affected. Married couples with children find it more difficult to spend time together as a couple because their children take priority over them as a couple. Marital satisfaction was affected by the shift work hours which ATCs have to work. Those ATCs with partners in the aviation industry or who also worked odd hours received support and understanding from their partners. This is because they are familiar with the challenges of the industry and of working awkward hours.

Life satisfaction was negatively affected by work conflict as well as family conflict and positively affected by work satisfaction. ATCs reported having a good quality of life which they attributed to their family, homes, financial stability and flexible time to engage in satisfying activities mid-week.

Work conflict was experienced from dealing with weather, equipment failure and management behaviours that cause stress. Bad weather conditions demand for ATCs to be more alert and manage pilots that may be distressed in a bad weather. Equipment failure creates additional demands from the ATCs which they must handle. Managers have poor responses to necessary improvements in the work environment. Management behaviours should focus on creating a stress free work environment.

The experiences of women in this male dominated industry are different to those of men. They experienced sexism from men who have not accepted that women are as capable controllers as men. These pilots do not want to listen to instructions given by women and want to do their own thing. This behaviour compromises the safety of flights when the instructions given are not followed. Women need more support for shift work from their organisation. They experience challenges with child care because of working odd hours which interferes with their work-life balance.

Women are still the dominant care givers in the family environment. They carry more of the family household responsibilities, including child care. Shift work hours presented challenges of managing the demands of their personal lives at home. Women with more support to manage shift work experienced better work-life balance unlike those with limited support who experienced work-life conflict. This conflict contributes to increased stress for women. Individual preferences for support can result in support that is insufficient to the demands of shift work. Those who do not like helpers experience higher stress from having to perform all their household responsibilities. Additionally support from managers may not be used by female employees because of fear that they will be viewed as incompetent at managing their personal lives and work.

More similarities than differences from research exist in the experiences of work-life balance in these South African shift working ATCs. Differences include making more use of support from helpers, colleagues who allow shift swaps and their parents assisting with child care. The difference in the air traffic control environment exists because they reported that they are generally able to separate personal issues from work. When they plug in to communicate and control air traffic they are in a separate world. The only thing that exists for them is the aircraft they are controlling. As soon as they plug out and leave their work position they are able to disconnect and forget about work until the next shift. Under normal conditions they are able to focus on work when they are at work and focus on their personal life when they are out of work.

Stress at work is experienced for a short period of time while they deal with the challenging situations. Only when an abnormal event occurs at work it will spill over into their personal life. Work-life conflict is experienced when negative emotions from work are taken to their personal home life. At times ATCs experience family conflict with severe personal issues which could affect their

ability to perform effectively. They take it upon themselves to advise their managers. They avoid controlling air traffic when their attention is distracted with personal issues. By informing their managers they are able to eliminate a situation that can affect them if they are working. Distractions for ATCs could impact on the safety of flights. In the event that most ATCs realise they cannot separate a personal issue from work, they do not control air traffic until the issue no longer can distract them at work.

It is essential that ATCs maintain work-life balance in their lives. The successful management of the impact of shift work and their jobs on their personal lives reduces stress and interruptions on work. Shift work effects such as poor sleep and stress in the form of illness should not compromise the quality of work necessary to maintain safety in the ATC environment. Support from the organisation for work-life balance is essential in creating a conducive work environment. This will promote safety by ensuring that ATCs who work there are able to perform at their best.

Majority of respondents prefer shift work even though they suffer from effects of health and conflict with their personal life. Some the ATCs had a preference for night shift even though they had difficulty in recovering from it. The time flexibility during the week they have allows the majority of them to pursue activities that are meaningful to them and improve their life satisfaction.

Refer to figure 1, of the Work-family conflict model of Kopelman (1983) suggested that work conflict and family conflict are related to inter-role conflict. This was visible in the study through shift work schedules on weekends. Most ATCs dislike weekend work and it caused family conflict in the form of rejection and inability to spent time with them. The inability to perform family roles on weekends because ATCs were performing their work role resulted in inter-role conflict. Kopelman (1983) also suggests that inter-role conflict is related to work

satisfaction, for the majority ATCs in the study this was not true. Although they experienced inter-role conflict negatively they did not experience work satisfaction negatively as suggested by the model. They had positive reports about their jobs. Inter-role conflict had an effect on marital and relationship satisfaction because couples and other family and friends experience non-overlapping time and it became challenging to sustain relationships. With extra effort put in to finding time for their marital relationship ATCs are able to maintain marital satisfaction. The combination of work satisfaction and marital satisfaction are related to life satisfaction. The exciting and challenging nature of their work together with the family orientation for ATCs was a contributor to their quality of life resulted in life satisfaction. Furthermore the model suggests negative experiences of any of these concepts; work conflict, family conflict, inter-role conflict, work satisfaction, marital satisfaction and life satisfaction can all result in stress. This was true in this study because different respondents reported experiencing challenges and stress which also manifested in the form of illness from their experiences of shift work and air traffic control demands.

5.3 Recommendations

Organisations in shift work industries should continuously evaluate the effect of shifts on the lives of their employees. This can be done by conducting employee surveys that can bring information to management. This will inform management of the nature of challenges that prevail and be able to efficiently make the necessary changes. Poor ability to adjust to shift work can compromise their quality of work.

As the work force evolves with the increase of women in previously male dominated industries it is necessary to accommodate their needs. By supporting women the organisation can benefit from having committed and satisfied employees as well as low turnover. Work-life balance challenges for women

must be accommodated as much as possible in the work place with the use of programs that help them cope such as Employees Assisted Programs, policies and designs of shift work structures that are easy to adjust to. Increased management support activities must be standardised. All employees must be able to receive management support, it should not be up to the discretion of individual managers to be supportive. This can also eliminate the unwillingness to ask for support by some employees to who need it but have a fear of being identified as incompetent if they ask.

Organisations must also promote good health for shift workers. Maintaining good health will reduce the experience of harmful effects of shift work for employees and for the organisation. The effects of illness as a result of their poor job conditions need to be reduced. Interventions that promote good health such as a canteen for healthy meals can be introduced. Organisations can partner with franchises that specialise in healthy food to do this. Gym facilities to work off stress can be incorporated close to work. This would enable ATCs to exercise on their break and burn off stress experienced from their job. Employees would be able to return to work refreshed and energise to work. The poor life style and effects of shift work contributes to stressful life and illness which can be prevented.

Organisations that have shift work schedules can make use of the International Labour Organisation (ILO) recommendations. The ILO provides guide lines about the shift work effects for women, design of shift schedules, inclusion of employees in work design and the support of shift workers (Kogi, 1998). By adhering to these recommendations managers can be able to provide better work environments for their employees. Where they are unable to meet a specific recommendation they can look for an alternative to the suggestion that is more suitable for their industry and organisation. Recommendations can be amended where necessary in order to benefit from the results.

For organisations in the aviation industry recommendations of how to manage fatigue are available. The Fatigue Risk Management Systems (FRMS) contains recommendations for organisations to manage optimal productivity and reduction of safety risk due to fatigue in organisations. FRMS has been accredited by International Air Transport Association (IATA), International Civil Aviation Organisation (ICAO) as well as International Federation of Pilots Associations (IFALPA) (IATA, 2011). In the implementation of FRMS managers must apply the FRMS in alignment with their organisations and systems and according to the guidelines in order for them to derive the most benefit from it.

Employees in shift work must take ownership of their lives. They should make an effort to have healthy lifestyles in order to minimise harmful shift work effects. Eating the right kind of food can eliminate poor health that could negatively enhance the effect of shift work. With the flexible time employees have during the day, regular exercise can be incorporated during the week. This could also be done while spending quality time with family in the form of taking walks and engaging in physical activities and events out doors with them.

Employees should also identify means of support for shift work. They should take responsibility in solicitation of the kind of support that is suitable to them. Women should not suffer in silence. They should speak up about the challenges they face and ask for support where it is needed. Increased visibility and voice for work-life balance issues that women face as a result of shift may be heard by management and organisational changes may occur to improve the situation.

5.4 Suggestions for further research

Research in work-life balance for lower income earners in South Africa is required. Griggs et al. (2013) suggests that lower income earners in shift work experience more challenges with work-life balance. In this research majority of ATC reported to be financially comfortable. The study may not have been able to capture experiences of work-life balance for other social economic group. This will be beneficial because as an emerging economy South Africa has lower income earners. The research could focus of the type of support for work-life balance they use and able to afford with their limited income.

Work-life balance experiences for males needs to be uncovered. Exploration of experiences of married men with children about their work-life balance is lacking in research. Men have become more involved with household responsibilities and are more active in their children's lives. They may experience similar challenges as women or a new dynamic of work-life balance may exist for them. Men that are more family orientated or are single father's experiences should be uncovered. This would allow the right kind of support for those men who do experience challenges. Questions they could be asked can be in the area of the nature of work conflict that interferes with home responsibilities and how they deal with the demands of both work and home.

Identifying work-life balance for other industries in South Africa is required. Uncovering if it is industry specific, company specific or if commonalities exist throughout South Africa is necessary. Each organisation has specific policies and procedures and their own culture and way of doing things. Organisations in a similar industry could have similar practices of work-life balance. For the South African environment there could be a single or multiple forms of work-life balance that are present. A variety of studies could be done using different

research methodologies and a variety of research instruments. A comparison of the different finding from different studies could provide more data that will uncover work-life balance in South Africa.

More research into the elements that can act as a buffer to poor work-life balance would help eliminate challenges. Ways to minimise the negative impact of inter-role conflict between work and family is necessary. Exploration of the right kind of support for work-life balance could eliminate the problem of conflict. Surveys of the different challenges experienced by employees could be conducted. Additionally respondents could recommend the kind of support that could eliminate their challenges.

5.5 Limitations of the study

The study describes work-life balance for shift working ATCs who are based in Johannesburg OR Tambo Airport. It was limited to the use of a convenient sample. The nature of being a case study makes the information reported by respondents only true to them. As individuals they evaluate their own experiences in their own way. A scale cannot be used in qualitative research to compare results in a statistical manner.

The report study of work-life balance is one sided. Only the experiences of ATCs were considered. In the life and job of ATCs there are other factors and role players that are affected by shift work. The organisational perspective of work-life balance was not included in the study. The family and friends of those involved with ATCs have also not been included in the study. The different role players in work-life balance for employees could be instrumental in uncovering a holistic view. A view from one side may contain bias in favour of that side.

The demographic profile of the research participants was a limitation in this study of work-life balance. The majority age group was younger than thirty five years. Only six married people participated and only eight participants have children. The expectation from the demographic profile was to have and even distribution of age groups and more married people with children. Presser (2000) observed that marriage and children brings more challenges to work-life balance. Costa (2003) discussed that older employees also experience more illnesses as a result of shift work. A different demographic profile could have different findings to this study.

5.6 Conclusion

In this study the objective was to describe how shift workers in ATC experience work-life balance. The concepts that were used in order to uncover this were taken from a Work-family conflict model by Kopelman (1983). These concepts were used to guide the study with the use of previously researched ideas. The concepts used in the study are not exhaustive and the findings of this research are true to the participants in this study. To eliminate work-life conflict and improve work-life balance the different role players need to make an effort. Employees as well as organisations can have negative effects from lack of work-life balance. It is the responsibility of all role players to ensure that work-life balance is experienced and allow employees to live satisfying as well as stress free lives.

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APPENDIX A:

Research invitation

Dear Sir/Madam

My Name is Nokwando Msibi and I am a registered Masters of Business Administration (MBA) student at Wits Business School. I am conducting research as a requirement for me to complete my degree. I have been granted permission by ATNS Executive to proceed with my research. I am inviting Air Traffic Controllers (ATCs) working in Johannesburg OR Tambo Airport (FAOR) to participate in my research.

Participation is voluntary and the information provided will be treated confidentially. Identities of all ATNS employees will not be disclosed and penalisation will not occur for participation or for not participating. The research will be conducted in the form of an interview. Participants may choose not to respond to any questions that make them feel uncomfortable and they have the right to end the interview if they no longer wish to participate in it.

The purpose of this study is to assess work-life balance for shift working ATC in South African aviation. I would like to conduct an investigation on the relationship between work life and non-work life for shift workers. I will be conducting interviews at the ATA or at a suitable venue and time for volunteering participants. For those who wish to take part in the study, I am available at:

E-mail: kwandomsibi@gmail.com and **Tel**: 0782838053

Kind regards
Nokwando Msibi

APPENDIX B:

Demographic profile form

Job title:

Sex:

Female

Male

Race

Black

Coloured

White

Indian

Other

Please specify

Age

18-25 years

26-35 years

36-45 years

46 years and older

Marital Status

Married Single Divorced Widowed Other

Number of children

Other dependents you are responsible for

APPENDIX C:

Research questionnaire

Work conflict

1. How do you handle the demands and responsibilities from working as an ATC?

Family conflict

2. How do you feel about the time you spend with your family?
3. How do you manage to meet your family responsibilities?

Inter-role conflict

4. How do you manage your work schedule demands and your family life demands?
5. How is your life structured to accommodate these roles in terms of availability of support?

Work satisfaction

6. Would you choose the same job again if you had a choice?

Marital satisfaction

7. How does your work and schedule affect your relationship?

Life satisfaction

8. How satisfying is the way you separate your time between your work and non-work responsibilities?
9. How do you evaluate your quality of life while?

Stress

10. What type of stress do you experience from your non-work life?
11. What type of stress do you experience from your job?

Shift work

12. How do you find adapting to the different shift schedules?
13. How has shift work affected your ability to cope with life?

Is there anything else you would like to add?

APPENDIX D:

Permission to do research at ATNS

Dear Nokwando

Trusting that you are well. A sincere apology for the delayed response. This e-mail serves to confirm that the Company gives you permission to conduct your research on condition that it benefits the Company and the following is adhered to:

1. That the research interviews is conducted by yourself at your own time, following the voluntary participation by the interviewees.
2. That unit management is informed of the process
3. That the research report is presented to ATNS before being published elsewhere, and no ATNS employee or line manager 's name will be disclosed and, that
4. The final report be shared with ATNS

Please liaise with Mr Manyakoana to make arrangements and planning, going forward.

Kind regards
Thandi Thankge
Executive: Human Capital | Human Capital
ATNS Head Office, Bruma, Johannesburg, South Africa

T: 011 607 1150 • F: 011 607 1581 • C: 072 693 6224
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APPENDIX E:

Consistency matrix

Research problem Statement: To identify the effects of shift work on work-life balance and analyse how shift work may interact with employee satisfaction and stress					
Sub-problem	**Literature Review**	**Hypotheses or Propositions or Research questions**	**Source of data**	**Type of data**	**Analysis**
Sub-problem 1 To distinguish the role of shift work on satisfaction with life and work	Important references Costa (2003) Felce and Perry (1995) Muecke (2005)	Nil	Appendix 1 Semi-structured interview	Description narrative of work-life balance from ATC	Thematic analysis
Sub-problem 2 To explore how shift work conflict may affect employee stress	Important references Carlson et al. (2009) Chiu et al. (1998) (Boles et al. (1997))	Nil	Appendix 1 Semi-structured interview	Description narrative of work-life balance from ATC	Thematic analysis

APPENDIX F:

Summary of research transcriptions

	Work conflict	Family conflict	Inter-role conflict	Work satisfaction	Marital satisfaction	Life satisfaction	Stress
Interview 1	Working with other colleagues creates conflict. Swapping shifts help. Reduced sleep. Sleepiness at work. Poor management. Likes night shift Use procedures and information learned. "Know your customers" Views controlling like playing a game.	Arguments with partner creates conflict.	Sick child cannot focus on work. Insufficient time for family. Support from helper. Shift work creates family conflict.	Choose ATC again. ATC fits personality. Interesting. Glad no work home taken. Takes pride in ATC. Prefers night shift.	Does not know how his job affects partner. Plan activities around work schedule.	Satisfied with the time off. Satisfied with salary.	Takes stress from home to work. Arguments with partner creates stress at work. Stress from working with others. Abnormal situations at work cause stress. Unable to workout & have a healthy lifestyle.

	Work conflict	Family conflict	Inter-role conflict	Work satisfaction	Marital satisfaction	Life satisfaction	Stress
Interview 2	Training is sufficient. Equipment and systems help. Mother supports coping with work. Struggles adapting from an afternoon to a morning shift.	He is often tired. Irregular Schedule make planning difficult. Sleep difficulty. Use of technology to communicate and maintain relations.	Work takes priority. Calls to manage relationship. Copes by talking to others & listens to music.	Like planes. Pride in ATC. May seek other options later because he is at the peak of his career as an ATCO3.	Works with partner. Requests similar shifts and day offs. Partner understands challenges of ATC	Wants to spend weekends on personal life. Evaluates his life by comparing himself with peers homes, jobs and relationships. Shifts disrupt eating, workout and social relations.	Family stress. Stressful job. Incident result in taking stress home. Support from work through counselling. Suffered fatigue. Poor sleep.

	Work conflict	Family conflict	Inter-role conflict	Work satisfaction	Marital satisfaction	Life satisfaction	Stress
Interview 3	No work home taken. Dislikes rigidness & dictation from management. Working weekends & holidays is the employment agreement. Relocated away from family. "Know your customer"	Has family time. Able to swap & request shifts. Plans family around work shifts.	Family understands shift work. Own manager grants requests. Flexibility of time for cooking, family, gym & studies. Has routine. Relations with colleagues allows for swaps.	Adapts to shifts. Swapping helps. Management politics a problem. Choose ATC again. Enjoyable job. Management transformation required.	Not in a relationship.	Wants more weekends off. Engages in work activities, study and two businesses. Happy family. Enjoys socialising and football.	No personal stress. Parent's ill health causes stress. He is healthy. Time allows pursuit activities. Bad management makes ATC job more stressful. Equipment failure & inefficiencies create stress.
Interview 4	Personality fit allows him to perform the job.	Enough time for family. Has been relocated away & transferred back to Johannesburg.	Work & family easy to manage. Takes life on a day-to-day, does not plan in advance. Helper cleans	Dislikes management politics. Choose ATC again. Loves ATC. ATC fits personality.	Fiancé in aviation. Happy. Limited time.	Wants more weekends off. Time off + salary= happy. Happy with family, socialising & ATC.	Sleep problems. Argument with partner & siblings cause stress. Job stress. Limited overlapping time with partner. Poor sleep causes flue.

	Work conflict	Family conflict	Inter-role conflict	Work satisfaction	Marital satisfaction	Life satisfaction	Stress
							Job stress copes with sleeping, partying or alcohol.
Interview 5	Demanding stressful job. Conflict with pilots & colleagues. Resolve aircraft conflict step-by-step. Applies info and training procedures.	Relocated away from family. Family orientated. Less arguments. No family responsibilities.	Controls outside of work. Planning in advance & swaps help. Family & work on Christmas. Helper cleans.	Likes the job although it is stressful. Avoids thinking about the number of lives-view it as controlling metal.	Controlling behaviours harmed relationship.	Poor eating habits. Flexible time. Studying. Happy with car, home, money. Want to lose weight.	Poor sleep. Stressed by parent's ill-health, family stress, social pressures of not being married, not having children yet. Weather cause job stress.
Interview 6	Swapping shifts help. Job is not demanding. Not take stress or work home. Training sufficient to manage the	Enough family time. Family & work on Christmas. Family understands advance notice required.	Enough personal time. Advance notice for requests & swaps help. House mate shares responsibilities.	Choose ATC again. Fun, interesting job & nice people.	Relationship stress	Able to engage in activities such as Instructing, shopping, jet skiing, vacations, socialising. Values family friends &	Relationship & social relations are stressful. Financial stress. Work load stress is brief & can be managed.

	Work conflict	Family conflict	Inter-role conflict	Work satisfaction	Marital satisfaction	Life satisfaction	Stress
	job.					activities	
Interview 7	Shift requests granted. Prefers night shift & shift work. Training equips job performance. Relief takes over traffic when she leaves.	20% family time insufficient. Mother used to live with both children now lives with 1 child due to shift work.	Parents help out. Splits the day, half for work other half for personal life. Work takes priority over family. Unable to attend own New year's eve party. Free time mid-week. Work interferes on weekends. No social life. Interferes with church. Support from mother sleeps over on night shift. Unhappy she is unable to be a mother. Unhappy with being pregnant & not	Choose ATC again. Requires more support for mothers. E.g. day care.	Husband hates her night shifts. Understanding partner in aviation. Don't see each other sometimes.	Able to do banking, enjoys cooking, She likes night shifts for time off. Misses socialising. No time to enjoy what she has. Values family, religion, garden. Misses church.	Unhealthy snacking on night shift. Family rejection – don't understand job. Racist colleagues. Difficulty adjusting to night shift. Constantly drives in darkness due to shifts.

	Work conflict	Family conflict	Inter-role conflict	Work satisfaction	Marital satisfaction	Life satisfaction	Stress
			controlling. Relocated a few times. Challenging to move out of shift work as an ATC.				
Interview 8	Helper supports shift work. Transformation required to accommodate women better. Shift work is inclusive of standard hours creates a Challenge adjusting. Follows job procedures.	Uses a year planner with husband to decide responsibilities. Easier-husband also in aviation. Goes home late sometimes to finish admin tasks.	Uses Woman's Development Program (WDP) skills and training to manage. Does not want to make decisions at home. Husband reminds her not to manage home. Unhappy about limited family time. Wants flexitime at work to meet family demands. Support from both parents, manager, helper.	Choose ATC again. Unique, dynamic, exciting authentic job. ATCs have 2 personalities. Dislikes training treatment. Believes 8-4 standard schedule is better for mothers. Wants flexi hours. Guilt for time spent at work	Children take priority over them as a couple. Sometimes miss each other due to shifts. Request similar shifts. Work in the same building as partner.	Reduced social company. Sacrifice Christmas holidays & family gatherings. Ability to shop at quiet time. Able to do projects, renovate, see family. Relocated 6 times. Transferred with partner. Happy with secure home & family.	Lots of stress. Worries about getting older, children, the future. Poor health due to lack of workout time. Unhealthy snacks for energy. Wants canteen for healthy food. Not enough time to have a healthy life.

	Work conflict	Family conflict	Inter-role conflict	Work satisfaction	Marital satisfaction	Life satisfaction	Stress
Interview 9	Struggles adapting from morning to afternoon. Hates night shift-difficultly recovering. Job not so stressful. Handles work a task at a time. Difficulty with radio equipment failure.	Lots of time. Husband also in shift work. See too much & too little of each other. Challenge with standard 8-4 hours included & tiredness from traffic, too tired to cook.	At work focuses on work. Goes home on a work adrenaline high-negative & positive, mostly negative. Helper cleans. ATNS Fatigue risk management helps shift workers.	Choose ATC again. Every day is different & challenging. Confined to chair. Glad no work taken home.	Sometime see too much or too little of each other. Both work shifts so they understand. Glad to miss traffic. Shift work =better balance between work and family. Very happy. Has all she wants.	Always tired. Dislikes working weekends and holidays. Likes flexibility of time & avoids traffic and queues with shifts.	Unhealthy snacking on morning shift. Worries about her business. Family is stressful. No personal stress. Radio failure, difficult pilots, and management changes are stressful. Looks forward to distress with a glass of wine after a long day at work.
Interview 10	Easy, no strain, controlling for a long time.	Enough time for family. Happy with shift work. Family understands advance notice and planning is required.	Work interferes with family. Requests with advance notice. Unable to attend funerals on weekends due to shift work. Lots of time for flying.	Choose ATC again ATC is wonderful. Wants more money.	Time clashes with partner, has accepted it.	Time for activities. Balanced work & personal life. Naps during the day=poor sleep at night. Night shifts preferred only for	No personal stress. Happy. No work stress.

	Work conflict	Family conflict	Inter-role conflict	Work satisfaction	Marital satisfaction	Life satisfaction	Stress
			Helper cleans.			strategic time off. Good quality of life from activities he does such as flying.	
Interview 11	Struggles adjusting from afternoon shift to morning. Generally copes well with shifts. Uses procedures, SSI and policies to perform job. Dislikes sexist male pilots. Deals with them by being firm. Job stress is brief. Shake stress off on a break and by talking to others.	Shift work allows more time. Needs and has a helper to manage. Struggled before a helper. Only cooks now. Mother takes children for weekends and holidays.	Support from husband, mother, full time helper, requests, and swaps. Shift work spill over interferes in social life. Misses family events & funerals. Informs manager if she has personal issues and she does not control. WDP taught her anger management and Emotional Intelligence to cope. Goes to work fatigued because she was busy	Choose ATC again. Glad there is no paperwork. Different every day. Glad no work home taken. Dislikes uneducated ATC with air force ranking culture.	Husband is ATC understands and supports her. Request similar shifts.	Wants more weekends off. Reduced social relations. Interrupts church. Happy to afford her life. Comfortable, financially secure, cars, home, family make her happy. Able to exercise, study, shop, bank.	Not often experience personal stress. Stressed by family disagreement. Emotional Intelligence from WDP helps manage stress. Prays about her stresses. Work stress is brief but intense. Stressed by unprofessional pilots & making mistakes at work. Believes in safety

	Work conflict	Family conflict	Inter-role conflict	Work satisfaction	Marital satisfaction	Life satisfaction	Stress
			before work. Can work a quieter position. Likes night shift. Manager & colleagues support, discussed a mothers roster.				before efficiency. Risks give her an adrenaline rush Follows safety procedure. Works step-by-step. Able to handle work load with notice to prepare.
Interview 12	Morning shifts make her tired. Likes night shift for time off. Training is sufficient. Bad weather creates challenges. Job stress is brief. Dislikes male pilots not happy with female ATC.	Had to send her child to live with mother when younger. Has free time when family is not available. Swaps to attend child's school needs. Family understands. Misses family events.	Separates work & family for minor issues. Spill over if a challenging situation at work occurs. Informs manager if experiencing personal issues who removes her from controlling. Trained to separate work and family, when plugging in it's her and the planes only. Mother sleeps over on her night shift for child	Not sure if she would choose ATC again. First job. Enjoys controlling	Has struggled with partners who work standard office hours. Not affect current relationship. Partner also has awkward hours= more understanding.	Suffers from headaches. Appreciates no traffic, shopping, cleaning & cooking at her own pace. Has quality time with daughter. Enjoys shift work. Satisfied by sleeping, friends & family, financial stability. Envies peers.	Misses social events. Stress from car trouble safety creating a risk of being stranded. Stressed when she is unable to meet daughter's needs. Work stress is brief. Facilities designed to manage work load.

	Work conflict	Family conflict	Inter-role conflict	Work satisfaction	Marital satisfaction	Life satisfaction	Stress
			care. Holiday child visits paternal grandparents. Colleagues give swaps to help out.			Enjoys life.	
Interview 13	Enjoys night shift for time off. Bad weather challenges. Partner also ATC & supports her. Avoids thinking of the number of people controlled, views people as a target. Frustrated by pilots that don't listen to instructions.	Very busy with 2 children. Misses out on family. Prefers more weekends off. Guilt for sending child to day care. Husband helps out. Relocated.	Support from in-laws husband, au pair and manager. After plugging in she focusses on work. Serious personal issues affect work. Vents to her husband about work. When her child is sick it affects work.	Shift work as an ATC is interesting and challenging. Choose ATC again. Fits bossy personality. Loves the job & ATNS. Glad no work home taken. Plugs out & it's over. Transferred with partner= difficulties	Relationship difficulties. Children priority & normally choose opposite shifts. Can go for a week without seeing partner. Request similar shifts in order to spend quality time, marriage is not threatened.	Able to shop, bank, watch movies when it's quieter. Dislikes afternoon shift due to interference with family. Satisfied. Happy with location, home and ATC.	Stressed by inability to complete household tasks, rushing to get things done, pilots who don't want to listen to instruction from a female.
Interview 14	Likes shift work. ATC no longer	Relocated. Job makes her	Helper cleans her house.	Choose ATC again. Different scenarios	Controls in relationships causes	Poor sleep. Regular fatigue.	Stressed about lifestyle for her son,

	Work conflict	Family conflict	Inter-role conflict	Work satisfaction	Marital satisfaction	Life satisfaction	Stress
	demanding but enjoyable. Shift work and child care challenges. Nannies who do not show up is stressful. Fatigue. Irregular sleep.	moody & bossy. Son stays with her mother. Enough time with family mid-week. Wants to spend weekends with them. Does not visit her child due to tiredness at times. Mothers from a distance.	Shift work makes her a distant mother. Too tired to clean. Work interferes with personal life. Struggles to manage. Controls in her personal life. Support from mother, sister, and brother. Believes shift work caters for those with partners. As a single mother she needs more support.	every day. Fits personality. Glad there is no deadlines & work at home. Stressful job.	conflict. Struggles with time & shift work. No understanding of differences in schedules in her relationships.	Wants more weekends off for social events. Able to do events-hobby. Mastered separation of work and family. Separates family from work. Happy when relaxing with family. Lives comfortably although not happy with finances & car.	not being married, unstable home. Headaches, neck and shoulder pain from stress. Enjoys job although stressful. Fears an incident and manslaughter jail term from ATC. Copes with alcohol and smoking.
Interview 15	She balances family and work to manage shift work. Challenges of being female of colour she has to	Not enough time. She has to overcompensate when she has a chance with family because she cannot always be there.	She has to be 100% to avoid putting others at risk. Does not work position when she has serious family issues bothering her as the ATNS	Not choose ATC job again. Too much responsibility & challenge doing the job & having a child. Does not like to be	Partner also in aviation, works abnormal hours as well. Non-overlapping hours is a challenge.	Yes, satisfied. Has had to learn to consciously separated work from family, some days it works. Her child makes	No personal stress, odd conflict with siblings. Work stress comes unexpectedly with abnormal events. No day to day work

	Work conflict	Family conflict	Inter-role conflict	Work satisfaction	Marital satisfaction	Life satisfaction	Stress
	constantly prove herself & pilots she deals with creates stress. The job is stressful & demanding, has learned with experience to deal with it over time. Manages shift ok, is used to it after ten years. Likes night shift but struggles to recover from it & it keeps her hostage during the day.	She stretches herself to meet family demands because she also runs the home. Does not want to appear incompetent because she is a woman.	policies advice. She has learned to take time off to ensure she is fit to work without putting lives at risk. Take stress home if she had a safety compromise at work. Talks to partner and friends for support. Has two helpers, day care not possible because of the hours. One helper was not able to manage child & house work. Has to find own support at work, minimum help from manger.	away from her child on a night shift. She finds it more stressful now. It was ok before her child for ten years. Finds it is more challenging for mothers with younger children.	They make the best of the time they do have. Support from partner who is in the industry and understands it. Aviation people tend to date each other because of the common understanding of the lifestyle demands.	her happy. She is happy. She has to balance and put in extra to manage because she does not want to miss out because of shift work. She has to sacrifice to make up.	stress. Does not get involved in work politics. Experience fatigue now and then. Life is more stressful with the baby. Does not like 8-4 hours but her life would be better to manage an 8-4 job now with a child. Night shift is stressful. Able to work out and eat well.

APPENDIX G:

Types of shifts: Johannesburg Approach Radar Control shifts

SHIFT NAME	SHIFT DURATION
51	05:45 to 12:30
61	05:45 to 13:00
62	06:15 to 13:00
70/71/72	06:45 to 13:00
10/11	12:45 to 19:15
12	12:45 to 19:45
20/21/22	13:45 to 19:45
Night shift	19:30 to 05:30
Admin shift	08:00 to 16:00

In a 28 days cycle an ATC gets 8 days off. An ATC is not allowed to work more than 7 operational shifts in a row.