

**Job satisfaction, satisfaction with life and psychological well-being:  
comparing shift workers and non-shift workers.**

Chantelle Kavanagh

Student number: 1581763

Submitted in partial fulfilment of the requirements of the BA Hons in Psychology at Dublin  
Business School, School of Arts, Dublin.

Supervisor: Dr. Keith Schofield

Head of Department: Dr. Sinead Eccles

March 2014

Department of Psychology

Dublin Business School

## TABLE OF CONTENTS

ACKNOWLEDGEMENTS.....	IV
ABSTRACT.....	V
1. INTRODUCTION.....	VI
1.1 Impacts of Shift work.....	VII
1.1.1. Physiological.....	VII
1.1.2. Psychological.....	VIII
1.2 Benefits/Risks of Shift work.....	XI
1.3 Demographic Variables.....	XI
1.4 Job satisfaction/Life satisfaction Relationship.....	XII
2. METHODOLOGY.....	XIII
2.1 Participants.....	XIII
2.2 Design.....	XIV
2.3 Materials.....	XV
2.4 Procedure.....	XVII
3. RESULTS.....	XIX
4. DISCUSSION.....	XXIV
4.1 Aims.....	XX
4.2 Hypothesis One.....	XXIV
4.3 Hypothesis Two.....	XXVI
4.4 Hypothesis Three.....	XXVII
4.5 Hypothesis Four.....	XXVIII
4.6 Demographic variables.....	XXIX
4.7 Limitations.....	XXIX
4.8 Conclusion.....	XXX
5. REFERENCES.....	XXXII
6. APPENDIX.....	XXXIII

## ACKNOWLEDGEMENTS

I would like to thank my colleagues across the company who participated in the study, without your involvement this research project would not have been possible. To my work place manager Joanne Myles, thank you for your assistance with the consent process and your support throughout. My supervisor Dr. Keith Schofield who was always on-hand to answer any questions and give guidance. James Byrne a big 'thank you' to you for your help with all things technical. To my husband Tom for his patience and support through the whole process.

Finally, I would like to dedicate this research project to my Dad who sadly passed last year.

It was a difficult journey but I know you were with me every step of the way.

## ABSTRACT

This research was designed to examine the differences in job satisfaction, satisfaction with life and psychological well-being of shift and non-shift workers. Employees from an international airline provided the necessary sample. No statistically significant differences were found between the groups in job satisfaction, satisfaction with life or psychological well-being, although an examination of the subscales of job satisfaction found statistically significant differences in the subscale areas of pay and contingent rewards. In these areas shift workers reported being less satisfied than non-shift workers. The relationship between job satisfaction and satisfaction with life was also examined and a moderate, positive relationship was found.

The demographic variables of age, gender, marital status or children living in the household found no significant differences between the groups in job satisfaction, satisfaction with life and psychological well-being.

## **Introduction**

A continuing increase in the economic demand for twenty-four/seven services has resulted in many companies requiring a shift work pattern to meet the needs of their customers. The range of services requiring shift workers to keep an operation functioning round-the-clock has also increased (Harrington, 2001). Traditionally, these work patterns were used in public service operations such as hospitals, fire departments, law enforcement, and transport and also in manufacturing but today this has expanded to include banking, on-line shopping and entertainment. The rapid growth of these industries has led to demands for employment that extends late into the evening, early morning and through the night shifts (Harrington, 2001).

Furthermore, developments in technology has allowed for the manufacture of highly specialist equipment. This equipment can be very costly for an organisation to purchase and often any interruption in the technical process can lead to deterioration of a product. An organisation may require constant operation of such specialist equipment in order to produce a profit. This has also contributed to the increased need for shift workers (Appelbaum, Bailey, Berg, & Kalleberg, 2000). A recent European study showed that 28% of the workforce had a variable work pattern, 10% worked evenings or nights and 17% worked rotating shifts (Boisard, Cartron, Gollac, & Valeyre, 2003). The global development of a twenty-four hour society suggests that these proportions are likely to increase.

The airline industry is an example of an increasingly competitive market where a combination of meeting consumer's twenty-four/seven demands and the need to continually operate expensive aircraft in order to maximise profit is key. In order to be successful the airline industry is required to employ a variety of shift work patterns to support the smooth operational side of the business.

A shift work pattern is a work schedule that falls outside the typical traditional pattern of Monday to Friday 9 am to 5pm. Shifts may vary from early morning, late night or through the night shifts (Harrington, 2001). In the airline industry, a variety of these shifts may be scheduled within an individual's roster period. In order to support the operation of the business a specific flight schedule is required to support the continual operation of expensive aircraft.

This study will examine the impact of shift work on job satisfaction, satisfaction with life and psychological well-being of shift workers in an international airline when compared to traditional day workers in the same organisation. Understanding the impact of shift work on employees is critical for developing productive and reasonable shift work management practices. This study will review the evidence in published literature that examines the impacts of shift work on employees and how that impacts their job satisfaction, satisfaction with life and psychological well-being. The aim of this study is to develop an understanding of the impact of shift work on employees which can be used to contribute to the development of fair shift work practices that can benefit both employees and employers.

## **Impacts of Shift Work**

### **Physiological**

Shift work can have both physiological and psychological impacts on employees. The physiological impacts arise from the disturbance of the sleep/wake cycle. Human beings develop a sleep/wake cycle that involves sleeping at night and waking in the morning, alert and ready to embark on a productive day. Both hormonal and environmental cues help establish this circadian rhythm. Problems with sleep arise from the disruption of the

circadian rhythm. When employees are forced to alter their sleep/wake cycle to correspond to a new shift it can take the body a number of days to adjust its cycle. A study into the health impacts of shift work show that shift workers report difficulty falling asleep, shorter duration of sleep, poorer quality sleep, a persistent feeling of 'jet lag' and needing more physical effort to complete their work (Lipovcan, Larsen, & Zganec, 2004; Gordon, Cleary, Parker, & Czeisler, 1986). When rotating work shifts the body never gets accustomed to working one time period and is constantly trying to adapt to a new cycle. When measuring cortisol circadian profiles in shift workers Lac & Chamoux, (2004) found the greatest changes were in shift workers who were demonstrating the difficulties of adapting to different work patterns.

Shift workers are reported to have poorer health habits (Jena & Goswami, 2012). They are reported to consume more alcohol, have reduced physical activity and use cigarettes. Night and rotating shift workers are also reported to have poorer diets and disrupted eating habits when compared to traditional day workers (Gordon, et al., 1986). The combination of sleep deprivation and poor health choices can lead to a weakened immune system leaving this group susceptible to illness and disease. This impacts organisations directly as research has shown that shift workers have increased levels of workplace absenteeism (Dionne & Dostie, 2007).

### **Psychological**

A number of studies have highlighted the psychological effects of shift work on employees. Bohle and Tilley (1998) found high levels of job-related stress and perceived work-family conflict among shift working nurses. High stress levels were also recorded among shift workers in a study carried out by Lac & Chamoux, (2004). Shift workers perceived

interference from their work schedule with a perceived inability to fulfill roles as spouses or parents (Mott, 1965). This study also highlighted a significant association between this perception and self-reported psychological and psychosomatic disturbances. In a study by Gordan et al., (1986) both male and female shift workers reported increased levels of job stress and emotional problems when compared to non-shift workers. Research has also demonstrated that characteristics of shift work schedules, i.e shift length, have implications for off-shift well-being including physical and mental health (Barnes-Farrell, et al., 2008).

Working late into the evening and weekends is known to disrupt the social activities of shift workers. The degree and quality of social interaction is linked to both physiological and psychological health (Gordon, et al., 1986).

Shift workers can tend to become accustomed to the negative effects of shift work. A study by Spelten, Barton and Folkard (1993) found that after a long period of working a shift pattern, shift workers seemed to have 'lost sight' of what 'normal' life is like. This research found that shift workers habituate to a gradual lowering of their well-being and subjective health and will, therefore, rate themselves as relatively normal on a self-report measurement scale. Many shift workers are possibly blind to the physiological and psychological impacts of shift work on them. This habituation and subsequent oversight of the impacts of shift work can be a limitation to any previous and future study, including this current study, on the impacts of shift work on any variable.

### **Benefits/Risks of Shift work**

Looking at the physiological and psychological impacts of shift work it is hard to see why so many people choose to work in a field that puts such high demands on the body and lifestyle.

Research has shown that the negative impacts of shift work extend into family and social life and even so far as it has a negative impact on the conjugal life of the shift worker (Jena & Goswami, 2012).

Despite this, there are some benefits to working shift patterns. Most shift workers find they have more time off than traditional day workers and they can use this time to pursue hobbies or to enjoy quality time with family and friends (Bohle & Tilley, 1998). Although research by Wedderburn (1996) found that often shift workers waste some of their time off simply trying to recover from their shift. Shift workers often enjoy the freedom to complete daily tasks, such as shopping and banking, at off-peak times. Research has found conflicting results in the area of reported levels job satisfaction and life satisfaction. In a study by Lac & Chamoux, (2004), shift workers reported lower levels of satisfaction with life and job satisfaction than a control group; participants in another study reported that the disruption to their family and social lives and the fatigue caused by sleep deprivation resulted in job dissatisfaction (Shen & Dicker, 2008). Furthermore, a study measuring quality of life and life satisfaction found no difference in happiness levels when comparing shift workers and non-shift workers, although shift-workers reported feeling more physically tired (Kaliterna, Prizmic, & Zganec, 2004).

There are occupational risks associated with the fatigue and stress caused by shift work. Occupational stress brought on by shift work can lead to performance errors which can result in increased production rejects, reduced product quality, increased workplace accidents and serious injuries on the job (Gordon, et al., 1986; Shen & Dicker, 2008). Laboratory studies have shown an association between disturbances in circadian rhythms and loss of attention, motivation, ability to concentrate, and a slowing of perceptual-motor processes. The constant disruption of circadian rhythms can be placing shift workers in a more vulnerable state in relation to work place accidents and injuries (Gordon, et al., 1986).

## **Demographic Variables**

A number of demographic variables may influence the outcome of levels of satisfaction with life, job satisfaction and psychological well-being. This study will look at the areas of age, gender and marital status to examine their impact on the variables mentioned above.

There is conflicting research into the area of how age and marital status affects the satisfaction levels in work and life of the shift workers. Wedderburn (1996) found the greatest levels of job satisfaction in shift workers in the 31 to 40 age group and low job satisfaction levels in the under 21 group and over 50 group although other research reported older workers as being most satisfied with work. Research has shown the retiring age of shift workers as relatively lower than in other sectors (Shen & Dicker, 2008).

Gender as a moderating factor seems to have also produced conflicting findings with some research suggesting that female employees are more affected by shift work than men and others finding no significant difference between males and females (Shen & Dicker, 2008).

The evidence regarding marital status is also in-conclusive. In a study researching the effect of age and marital status, findings reported no relationship between these demographic variables and dissatisfaction with shift work (Bohle & Tilley, 1998) although it was noted that these findings were not consistent with previous evidence. In a study by Shen & Dicker, (2008), results showed that married employees with children are more likely to be affected by shift work as their work limits their participation in regular family duties.

These inconsistent and inconclusive findings highlight the need for further research into the moderating effects of demographic variables on the shift worker. The current study will also seek to identify the impact the demographic variables of age, gender and marital status to determine differences between the two groups in these areas. The current study will address

the question of how the demographic variables of age, gender and marital status moderate the impacts of shift work.

### **Job satisfaction/Life satisfaction Relationship**

Previous research to date has examined the causal relationship between job satisfaction and satisfaction with life (Chacko, 1983; Watanabe & Judge, 1993). Watanabe & Judge, (1993), found a significant strong relationship between the two constructs. Although a significant strong relationship was found they were unable to determine whether life satisfaction caused job satisfaction or whether job satisfaction caused life satisfaction. These two constructs are inextricably linked, meaning that the measurement of them individually is often difficult, as the research suggests. The aim of this research is to further examine the relationship between job satisfaction and satisfaction with life. A correlation co-efficient will be used to determine if there is a relationship between job satisfaction and satisfaction with life.

Hypothesis 1. Shift workers will show decreased levels of job satisfaction when compared to day workers.

Hypothesis 2. Shift workers will show decreased levels of satisfaction with life when compared to day workers.

Hypothesis 3. Shift workers will display a decrease in psychological well-being compared to day workers.

Hypothesis 4. There will be a positive relationship between job satisfaction and satisfaction with life in both shift and non-shift workers.

The purpose of this study is to enhance understanding of the implications of shift work on employees. It is hoped that improved understanding of these implications can guide employer's decisions when implementing such work patterns. The findings of this research will not only contribute to the current literature on how shift work affects employees but it will also suggest recommendations to the best way to implement these shift work patterns to benefit both the employee and employer.

## **Method**

### **Participants**

This study was conducted using stratified random sampling. The airline industry offered the necessary population to conduct this study as the operation of this business requires both shift workers and traditional day workers. Therefore the study contained two strata, shift workers and day workers. A total of ninety-seven people participated in the study with a split of forty eight shift workers and forty nine day workers. A total number of forty-nine males participated in the study compared to forty-eight females. Random sampling from each strata was employed to recruit participants.

The shift work strata consisted of cabin crew and pilots while the non-shift worker strata consisted of employees from all departments in the company, including human resources, information technology, finance and marketing, at all grades. Due to the nature of their work cabin crew and pilots have little access to the internet during work hours so pen and paper surveys were utilised over an on-line version of the survey. These participants were selected randomly and asked to participate in the study. An on-line version of the same survey was compiled and sent via email to the non-shift workers. No inducement to participate was necessary.

### **Design**

The current study adopted a quantitative, quasi-experimental, cross-sectional design, correlational study, which is descriptive in nature. It compares the scores on job satisfaction, satisfaction with life and the psychological well-being of two groups of people. The independent variables are shift workers and non-shift workers. The dependent variables are job satisfaction, satisfaction with life and psychological well-being.

The correlational portion of the study will look at the relationship between job satisfaction and satisfaction with life. The predictor variables are shift workers and non-shift workers.

The criterion variables are job satisfaction and satisfaction with life.

### **Materials**

Three questionnaires were compiled into a booklet with a cover letter attached and administered to each participant. The selected questionnaires were chosen to measure the intended dependent variables. These were the Job Satisfaction Survey (JSS), The Satisfaction with Life Scale (SWLS) and the General Health Questionnaire (GHQ12).

The JSS (Spector, 1985) is a thirty-six item questionnaire that assesses employee attitudes to different aspects of their job. There are nine different facets in total and each facet uses four items to assess that aspect of the job. The nine facets are Pay, Promotion, Supervision, Fringe

Benefits, Contingent Rewards, Operating Procedures, Co-workers, Nature of Work and Communication. 'I feel a sense of pride in doing my job' is an example of one item that measures employee attitude to the nature of work. Each item is answered using a summated rating scale format, with six choices per item ranging from "strongly agree" to "strongly disagree". Items are worded in both directions so negatively worded items must be reversed scored. A total score in each subscale and a total score of all items can then be computed. Scores on each of the nine facet subscales can range from 4 to 24 while scores for total job satisfaction can range from 36 to 216. A score of 4 to 12 on a subscale indicates dissatisfaction while a score of 16 to 24 indicates satisfaction in that aspect of the job. A score of between 12 and 16 indicates ambivalence. When measuring total job satisfaction a score of 36 to 108 indicates job dissatisfaction, 144 to 216 indicates job satisfaction and 108 to 144 indicates ambivalence.

The low number of questions in varying subscales and the established reliability and validity of the JSS (Gholami, Talebiyan, Aghamiri, & Mohammadian, 2012) was among the main reasons why it was the chosen measurement tool for job satisfaction in this study.

The SWLS (Diener, Emmons, Larsen, & Griffan, 1985) is a five item questionnaire that measures cognitive judgement of satisfaction with one's life. It consists of five statements, "The conditions of my life are excellent" being one example, and requires the participant to indicate their agreement with the statement using a seven point Likert scale ranging from "strongly disagree" to "strongly agree". Total scores can then be computed to indicate the level of satisfaction with one's life.

A score of 30 to 35 indicates the participant is extremely satisfied with their life, they love life and the major domains of life (work, family, friends, leisure and personal development) are going well. A score of 25 to 29 indicates the participant is highly satisfied with life, they like life and the major domains of life are also going well but they can draw on the areas of dissatisfaction as motivation. A score of 20 to 24 is the average score in economically developed nations and indicates the participant is generally satisfied but they have areas in their life that need improvement. A score of 15 to 19 is slightly below average and indicates the participant is slightly dissatisfied with life. They may have small but significant problems in several areas of life or one area of life that represents a substantial problem for them. A score of 10 to 14 indicates the participant is dissatisfied with life. Participants in this range may have a number of domains in life that are not going well or may have substantial problems in one or two domains. A score of 5 to 9 indicates the participant is extremely dissatisfied with life. This could have an underlying cause such as a recent bereavement, unemployment or a type of addiction. A person scoring in this category often needs professional help in order to make changes in their life.

Research into the reliability and validity of the SWLS has shown it to be both a reliable and valid measure of life satisfaction and has deemed it suitable for use across a wide range of age groups and applications (Pavot, Diener, Colvin, & Sandvik, 1991).

The GHQ-12 (Goldberg & Williams, 1988) is a widely used measure of mental health. It consists of twelve items worded both positively and negatively. Each item on the questionnaire begins with the question “Have you recently...” and is followed by a statement such as “Been able to enjoy your normal day to day activities?” The participants are given four choices to indicate their answer. The answers are on a Likert scale ranging from “More so than usual” to “Much less than usual” for positively worded questions and “Not at all” to “Much more than usual” for negatively worded questions. Each answer is then given a score from 0 to 3. The total score is then computed. The minimum possible total score is 0 while the maximum possible total score is 36. Low scores indicate little or no signs of psychological distress. A score greater than 20 indicates severe problems and psychological distress, a score of 15 to 20 indicates evidence of psychological distress. Typical scores are about 11 to 12. Split-half and test-retest correlations have tested the reliability of the GHQ-12 with good results (Goldberg & Williams, 1988). Research into clinical assessments of psychiatric illness have identified the GHQ-12 as a valid measurement of psychological well-being (Goldberg & Huxley, 1980). The full questionnaire, including all three measures, can be found in the appendix.

## **Procedure**

A proposal of the intended research successfully passed an ethics guideline filter. The proposed organisation was contacted to request permission to access their employees. The three surveys were assembled along with a cover letter. The cover letter outlined who was

conducting the research, the nature of the research, consent surrounding the research and voluntary participation. As way of a debriefing, a support service number was provided for participants in the event that any of the questions caused distress.

The intended shift work associates were approached and verbally invited to participate in the study. A portion of participants agreed on the spot, completed the pen and paper survey and returned it to the researcher. Other associates agreed to participate, took the survey away to complete in their own time and returned the survey to a designated drop box. A portion of surveys (26) were not returned to the researcher.

The intended non-shift workers were emailed a copy of the same survey including the same cover letter. An on-line application anonymously accumulated completed responses. A total of 455 emails were randomly sent out with a response of 49 completed surveys. The data from the shift workers and non-shift workers was inputted into SPSS in order for the researcher to analyse the results in relation to the research hypothesis.

## RESULTS

The purpose of this research was to investigate the implications of shift work on employee's job satisfaction, satisfaction with life and psychological well-being. This would be achieved by way of comparison to employees in the same organisation who do not work on a shift pattern. The analyses was attained using an independent samples t-test. Analyses of the results lead to a more in depth examination of differences between the groups using a One-Way Analysis of Variance (ANOVA). The strength and direction of the relationship between job satisfaction and satisfaction with life was also identified as an area that required further examination. A Pearson's correlation coefficient was utilised to examine this relationship. SPSS Version 21.0 was used to analyse the collected data.

Hypothesis 1 stated that shift workers will show decreased levels of job satisfaction when compared to day workers. A histogram confirmed that the data was normally distributed and therefore an independent samples t-test was employed to analyse the levels of job satisfaction between the two groups. Shift workers (mean = 132.23, SD = 19.60) were found to have

lower levels of job satisfaction than non-shift workers (mean = 139.29, SD = 24.12). The 95% confidence limits shows that the population mean difference of the variables lies somewhere between -16.00 and 1.90. The independent t-test found there was no statistically significant difference between levels of job satisfaction in shift workers and non-shift workers ( $t(94) = -1.56, p = .121$ ). Therefore the null cannot be rejected.

Although no significant difference was identified in the overall results an analysis of the subscales of job satisfaction was carried out to identify any areas of significance.

A significant difference was identified between shift workers and non-shift in the subscale areas of pay and contingent rewards. Results of an independent samples t-test are displayed in Table 1. Shift workers (mean = 12.35, SD = 3.97) were found to have lower levels of job satisfaction than non-shift workers (mean = 14.27, SD = 4.51) in the subscale area of pay. The 95% confidence limits shows that the population mean difference of the variables lies somewhere between -3.62 and -.20. An independent samples t-test found that there was a statistically significant difference between pay satisfaction levels of shift workers and nonshift workers ( $t(95) = -2.21, p = .029$ ).

A statistically significant difference was also found in the subscale area of contingent rewards. Shift workers (mean = 12.77, SD = 3.99) were found to have lower levels of satisfaction with contingent rewards than non-shift workers (mean = 15.24, SD = 4.45). The 95% confidence limits shows that the population mean difference of the variables lies somewhere between -4.18 and -.77. An independent samples t-test found that there was a statistically significant difference between contingent rewards satisfaction levels in shift and non-shift workers ( $t(95) = -2.88, p = .005$ ). An analyses of the subscale areas of promotion,

supervision, fringe benefits, operating conditions, co-workers, nature of work and communication found no statistically significant differences between the two groups.

Table 1. *An independent samples t-test analysing the difference between shift workers and non-shift workers in the sub-scale areas of pay and contingent rewards.*

<b>Variables</b>	<b>Groups</b>	<b>Mean</b>	<b>SD</b>	<b>t</b>	<b>df</b>	<b>p</b>
<b>Job satisfaction</b>	Shift	132.23	19.60	-1.56	95	.121
	Non shift	139.29	24.12			
<b>Pay</b>	Shift	12.35	3.97	-2.213	95	.029*
	Non shift	14.27	4.51			
<b>Contingent rewards</b>	Shift	12.77	3.99	-2.880	95	.005*
	Non shift	15.24	4.45			

\**p* is significant at .05 level.

The shift work group consisted of both pilots and cabin crew operating a shift work pattern. To facilitate further analyses the shift work group was separated into the respective groups of cabin crew and pilots. A One-Way Analysis of Variance (ANOVA) test was performed to examine the differences in levels of job satisfaction between the cabin crew, pilots and nonshift workers. The results of the One-Way ANOVA are displayed in Table 2.

Table 2. *A One-Way Analysis of Variance of job satisfaction between groups/within groups of pilots, cabin crew and non-shift workers.*

<b>Variable</b>	<b>Groups</b>	<b>Mean</b>	<b>SD</b>	<b>F</b>	<b>df</b>	<b>p</b>
<b>Job Satisfaction</b>	Pilots	141.10	15.55	3.41	2	.037*
	Cabin crew	127.10	19.77			
	Non-shift	139.16	24.17			

\**p* is significant at .05 level.

When the levels of job satisfaction for each group is measured the cabin crew group reported the lowest levels of job satisfaction. A one-way analysis of variance showed that there was a significant difference between the three groups in terms of their job satisfaction levels ( $F(2, 93) = 3.41, p = .037$ ). More specifically, Tukey HSD post hoc analysis highlighted that the differences were significant in nature between the cabin crew ( $M = 127.10, SD = 19.77$ ) and the non-shift group ( $M = 139.16, SD = 24.17, p = .049$ ).

A comparison of the two respective groups within the shift work group, cabin crew and pilots, found a statistically significant difference in levels of job satisfaction between the two groups. Cabin crew (mean = 127.10, SD = 19.77) reported lower levels of job satisfaction when compared to pilots (mean = 141.06, SD = 15.55). The 95% confidence limits shows the population mean difference lies somewhere between 2.39 and 25.52. An independent samples t-test found there was a statistically significant difference in levels of job satisfaction between cabin crew and pilots ( $t(43) = 2.43, p = .019$ ).

Hypothesis 2 stated that shift workers will show decreased levels of satisfaction with life when compared to non-shift workers. A histogram confirmed the data was normally distributed and a t-test was employed to analyse the levels of satisfaction with life between the two groups. Shift workers (mean = 23.90, SD = 5.89) recorded lower levels of satisfaction with life than non-shift workers (mean = 24.15, SD = 5.40). The 95% confidence limits shows the population mean difference of the variables lies somewhere between -2.54 and 2.04. The independent t-test found there was no statistically significant difference between the levels of satisfaction with life in shift workers and non-shift workers ( $t(94) = -.22, p = .829$ ). Therefore the null cannot be rejected. The shift work group was again divided into its respective groups of cabin crew and pilots and to facilitate a comparison of

differences between those groups and the non-shift work group. A one-way analysis of variance revealed no significant differences between the three groups.

Hypothesis 3 stated that shift workers will display a decrease in psychological well-being compared to non-shift workers. A histogram confirmed the data was normally distributed and an independent t-test was employed to test the psychological well-being of shift workers compared to non-shift workers. Non-shift workers (mean = 11.65, SD = 5.19) recorded lower levels of psychological well-being when compared to shift workers (mean = 11.31, SD = 5.85). The 95% confidence limits shows the population mean difference of the variables lies somewhere between -2.75 and 1.70. The independent t-test found there was no statistically significant difference between the levels of psychological well-being in shift workers and non-shift workers ( $t(95) = -.47, p = .639$ ). Therefore the null cannot be rejected. The shift work group was again divided into its respective groups of cabin crew and pilots and to facilitate a comparison of differences between those groups and the non-shift work group. A one-way analysis of variance revealed no significant differences between the three groups.

Hypothesis 4 stated that there will be a positive relationship between job satisfaction and satisfaction with life in shift workers. A scatterplot identified a positive relationship between the two variables. The mean scores for job satisfaction was 135.83 (SD = 22.24) and for satisfaction with life was 24.02 (SD = 5.61). A Pearson correlation coefficient found that there was a moderate positive significant relationship between job satisfaction and satisfaction with life ( $r(95) = 0.32, p = .001$ ). Therefore the null hypothesis is rejected.

In order to examine the difference between the demographic variables of age, gender, marital status and children living in the household, a series of independent t-tests and correlation coefficient tests were utilised. The tests revealed no significant differences in job satisfaction, satisfaction with life or psychological well-being among shift and non-shift workers when taking the demographic variables into account.

## **Discussion**

The increased demand for shift workers (Harrington, 2001) and the global development of a twenty-four hour society strengthened the requirement for the current research. The purpose of this research was to investigate the differences between job satisfaction, satisfaction with life and psychological well-being between shift workers and non-shift workers. Due to the physiological and psychological impacts of the disruption of the circadian rhythm, along with the occupational risks of shift work, it was expected that shift workers would have lower levels of job satisfaction, satisfaction with life and psychological well-being when compared to non-shift workers. Demographic variables such as age, gender, marital status and children in the household were also examined for differences between the groups.

In addition to examining the differences between these variables, this research also aimed to examine the relationship between job satisfaction and satisfaction with life.

### **Hypothesis One – Differences in job satisfaction between shift workers and non-shift workers.**

Previous research into job satisfaction among shift workers showed consistent results. Research by Lac & Chamoux, (2004), found that shift workers expressed lower levels of job satisfaction when compared to a non-shift control group. Furthermore, research by Shen & Dicker, (2008), found that disruption to the family and social lives of shift workers can result in job dissatisfaction. In addition, research by Jena & Goswami, (2012), found that levels of

dissatisfaction with shift schedules outweighed any positive views of other work aspects and thus resulted in job dissatisfaction. The current study found that shift workers did not report statistically significant lower levels of job satisfaction when compared to non-shift workers, although the mean scores for shift workers were lower than non-shift workers. This finding is not in line with the findings of Lac & Chamoux, (2004), as a significant result was not found. The mean score of both groups placed them in the ambivalent category of job satisfaction on the JSS measurement scale. This finding does not support the stated hypothesis that shift workers will show decreased levels of job satisfaction when compared to non-shift workers.

No statistically significant result was found between the two groups in the general overall score of job satisfaction but examining the subscales of job satisfaction revealed interesting results. A statistically significant result was found between the two groups in the subscale categories of pay and contingent rewards. Satisfaction levels in the area of pay were assessed by the following items: 'I feel I am being paid a fair amount for the work I do', 'Raises are too few and far between', 'I feel unappreciated by the organisation when I think about what they pay me', and 'I feel satisfied with my chances for salary increases'. The mean score for the shift workers placed them on the border of the dissatisfied/ambivalent category while the mean score for the non-shift workers placed them in the ambivalent category.

Satisfaction levels of contingent rewards were assessed using the following items: 'When I do a good job I receive recognition for it', 'I do not feel the work I do is appreciated', 'There are few rewards for those who work here', and 'I don't feel my efforts are rewarded the way they should be'. Examination of this subscale highlighted the greatest difference between the two

groups and, again, a statistically significant difference was reported between them. The mean score for shift workers placed them on the border of the dissatisfied/ambivalent category while the mean score for the non-shift workers placed them in the ambivalent category.

In consideration of the nature of the subscales that displayed the significant differences, further investigation was carried out to determine if job satisfaction levels were consistent between the different occupations of shift workers. The shift work category consisted of cabin crew and pilots. Cabin crew reported statistically significant differences in levels of job satisfaction when compared to pilots. An analysis of the three groups; cabin crew, pilots, and non-shift workers, found statistically significant differences between the levels of job satisfaction between cabin crew and non-shift workers. No statistically significant differences were found between the pilots and the non-shift workers. The non-shift work group consisted of various professional occupations including finance, marketing and human resources, at all grades. It is suggested that further research into the area of job satisfaction of shift workers would concentrate on comparing like with like occupations. A comparison of a middle grade cabin crew member with a senior pilot or senior executive may not show a true comparison of job satisfaction with regards to shift work, as highlighted in the significant differences noted in pay and contingent rewards.

### **Hypothesis Two- Differences in satisfaction with life between shift workers and nonshift workers.**

Research into levels of satisfaction with life in shift workers has yielded conflicting results. Research has shown that the negative impacts of shift work can extend into family and social life resulting in decreased levels of satisfaction with life (Jena & Goswami, 2012). Similar research by Lac & Chamoux, (2004), also found that shift workers reported lower levels of

satisfaction with life. Furthermore research by Shen & Dicker, (2008), reported that fatigue caused by sleep deprivation disrupted the family and social lives of shift workers. Conversely, research by Kaliterna, Prizmic, & Zganec, (2004), found no differences in reported levels of satisfaction with life in shift workers when compared to non-shift workers. Before considering this finding it is important to note that in the study by Kaliterna, Prizmic, & Zganec, (2004), the number of non-shift participants far outweighed the shift work participants. This imbalance in shift/non-shift ratio could have implications for the findings of the study. The current study supports the findings of Kaliterna, Prizmic, & Zganec, (2004), as no statistically significant difference in levels of satisfaction with life was found between shift and non-shift workers. In contrast to the study by Kaliterna, Prizmic, & Zganec, (2004), the current study had equal numbers of shift and non-shift participants. The findings of the current research does not support the proposed hypothesis. It is however, important to note that although no statistically significant results were found between the two groups, the mean scores for satisfaction with life in shift workers was lower than that of nonshift workers. The mean score for both groups placed them in the 'generally satisfied' category of scoring on the SWLS. The mean score for non-shift workers placed them slightly above the average score for workers in economically developed countries. The current study did not differentiate between specific work patterns available to individual participants that may influence their work/life balance and thus influence their satisfaction with life. It is suggested that future research into the area of satisfaction with life among shift and non-shift workers would concentrate on comparing similar work arrangements, i.e part-time, flexitime, in order to avoid unambiguous results.

**Hypothesis Three – Differences in psychological well-being between shift and non-shift workers.**

Previous research by Mott, (1965), showed that shift workers reported interference from their work schedule resulted in a perceived inability to fulfill roles as spouses or parents and this perception contributed to self-reported psychological disturbances. Correspondingly, Gordan et al., (1986) found that shift workers demonstrated more emotional problems when compared to non-shift workers. This study associated the disruption of social interaction, due to working evenings and weekends, as a factor in the reported emotional problems of shift workers as the quality and degree of social interaction is linked to psychological health. The current study found no statistically significant differences between the psychological wellbeing of shift and non-shift workers. This finding is not in line with the previous research mentioned and does not support the proposed hypothesis. The mean score for psychological well-being for non-shift workers was slightly higher than that of shift workers indicating lower psychological well-being among non-shift workers. The current study utilised nonshift workers across all grades. Increased stress levels among specific non-shift work roles could explain the lower levels of psychological well-being and again highlights the need for future research to compare occupations like for like to identify the role of work patterns, not occupations, on psychological well-being. Building on the research by Gordan et al., (1986), it can be argued that due to the nature of their jobs, cabin crew and pilots have an increased opportunity to engage in social interaction and thus do not suffer, to the same degree as other shift workers, from the psychological impact of reduced social interaction. Future research would need to evaluate the degree of social interaction, through self-reporting, of shift workers in order to control for its impact on psychological well-being.

#### **Hypothesis Four – The relationship between job satisfaction and satisfaction with life.**

A moderate positive relationship was found between job satisfaction and satisfaction with life among participants. This finding is in line with the proposed hypothesis and previous

research by Watanabe & Judge, (1993), who also found a relationship between the two constructs. Both shift workers and non-shift workers reported ambivalence towards their job and reported being generally satisfied with life.

### **Demographic variables**

The current research found no statistically significant difference between the demographic variables of age, gender, marital status and children living in the household between shift and non-shift workers.

Research by Wedderburn, (1996), found greatest levels of job satisfaction in shift workers in the 31 to 40 age group. Conversely, the current research found greatest levels of job satisfaction in the 21 to 30 age group. The age profile combined with the opportunity to travel may explain the greatest levels of job satisfaction found among a young age profile. Both the research by Wedderburn, (1996), and the current research found the lowest levels of job satisfaction in the over 50 age group. The current research found the 41-50 age group as the most satisfied with life, their mean score placed them on the border of being 'generally satisfied with life' and 'highly satisfied with life'. The mean score of the 21-30 age group positioned them as the least satisfied group.

Previous research into gender as a moderating factor found no significant difference between males and females (Shen & Dicker, 2008). The current research supports this finding.

## **Limitations**

All participants in the study were from one organisation, future research would benefit from a wider sample. The sample size used in the study was relatively small (n=97), a larger sample would lead to more equal groups for comparison. Although surveys were anonymous shift participants knew the researcher and may not have fully disclosed their feelings on some of the questions. A major limitation of the current study was the underlying comparison of occupations, future research would benefit from concentrating on comparing like with like shift and non-shift participants. The current study did not segregate specific work patterns, i.e part-time, flexi time, from either shift or non-shift workers. The impact of varied work patterns can improve work/life balance and thus impact job satisfaction, satisfaction with life and psychological well-being. Future research would benefit from comparing like with like work patterns. Past research has shown that shift workers can become accustomed to the negative impact of shift work (Spelton, Barton and Folkard, 1993) and report feeling 'normal' as they have 'lost sight' of what normal life is like. This oversight is a limitation to this study and future study into the impacts of shift work.

## **Conclusion**

No significant difference was found in the levels of job satisfaction between the shift and non-shift workers, although the mean score of shift workers was lower than that of non-shift workers. Both groups reported feeling ambivalent towards their job. This study identified subscale regions of pay and contingent rewards as areas that showed significant differences between the groups. An in-depth analysis showed significant differences in job satisfaction between cabin crew and non-shift workers. Addressing the areas of pay and contingent rewards in the cabin crew group may lead increased levels of job satisfaction. Implementing

analysis of these target areas across shift work groups could address issues of job dissatisfaction among shift workers. The current study found no significant difference in levels of satisfaction with life and psychological well-being in shift and non-shift workers. The current study builds on past research into the relationship between job satisfaction and satisfaction with life, a moderate positive relationship was found. The demographic variables of age, gender, marital status or children living in the household found no significant differences between the groups in job satisfaction, satisfaction with life and psychological well-being. The need for further research into the impacts of shift work has been identified and a concentration on like for like occupations has been highlighted.

## References

- Appelbaum, E., Bailey, T., Berg, P., & Kalleberg, A. L. (2000). *Manufacturing Advantage: Why High-performance Work Systems Pay Off*. New York: Cornell University Press.
- Barnes-Farrell, J. L., Davies-Schrils, K., McGonagle, A., Walsh, B., Di Milia, L., Fischer, M. F., . . . Tepas, D. (2008). What aspects of shiftwork influence offshift well-being of healthcare workers? *Applied Ergonomics*, 39 (5), pp. 589-596.
- Bohle, P., & Tilley, A. J. (1998). Early experience of shiftwork: Influences on attitudes. *Journal Of Organizational Psychology*, 71, pp. 61-79.
- Boisard, P., Cartron, D., Gollac, M., & Valeyre, A. (2003). *Time and Work: Duration of work*. Dublin: European Foundation for the Improvement of Living and Working Conditions.
- Chacko, T. I. (1983). Job and Life Satisfaction: A causal analysis of their relationships. *Academy of Management Journal*, 26 (1), pp.163-169.
- Dhande, K. K., & Sharma, S. (2011). Influence of shift work in process industry on workers' occupational health, productivity, and family and social life: An ergonomic approach. *Human Factors & Ergonomics in Manufacturing & Service Industries*, 21 (3), pp. 260-268.
- Diener, E., Emmons, R. A., Larsen, R. J., & Griffan, S. (1985). The Satisfaction with Life Scale. *Journal of Personality Assessment*, 49, pp. 71-75.
- Dionne, G., & Dostie, B. (2007). New Evidence on the Determinants of Absenteeism using linked Employer-Employee Data. *Industrial & Labor Relations Review*, 61 (1), pp.108-120.
- Gholami, F. M., Talebiyan, D., Aghamiri, Z., & Mohammadian, M. (2012). Reliability and validity of "Job Satisfaction Survey" questionnaire in military health care workers. *Journal of Military Medicine*, 13 (4), pp.241-246.
- Goldberg, D. P., & Williams, P. (1988). *The User's Guide to the General Health Questionnaire*. NFER-Nelson: Windsor.

Goldberg, D., & Huxley, P. (1980). *Mental Illness in the Community: The pathway to psychiatric care*. London: Tavistock Publications.

Gordon, N. P., Cleary, P. D., Parker, C. E., & Czeisler, C. A. (1986). The Prevalence and Health Impact of Shiftwork. *American Journal of Public Health*, 76 (10), pp. 1225-1228.

Harrington, J. M. (2001). Health effects of shift and extended hours of work. *Occupational & Environmental Medicine*, 58 (1), pp. 68-72.

Hseueh, J., & Yoshikawa, H. (2007). Working Nonstandard Schedules and Variable Shifts in Low-Income Families: Associations With Parental Psychological WellBeing, Family Functioning and Child Well-Being. *Developmental Psychology*, 43 (3), pp.620-632.

Jena, D. K., & Goswami, D. (2012). Shift Workers VS Day Workers: A Comparative Study Of Physiological, Social and Personal Well-Being. *Far East Journal of Psychology and Business*, 62-71.

Kaliterna, L. L., Prizmic, L. Z., & Zganec, N. (2004). Quality of life, life satisfaction and happiness in shift and non-shiftworkers. *Revista De Saude Publica*, 38, pp.3-10.

Lac, G., & Chamoux, A. (2004). Biological and psychological responses to two rapid shiftwork schedules. *Ergonomics*, 1339-1349.

Mott, P. E. (1965). *Shift work; the social, psycjological, and physical consequences*. Ann Arbor, University of Michigan Press.

Pavot, W., Diener, E., Colvin, C., & Sandvik, E. (1991). Further validation of the Satisfaction with Life Scale: evidence for the cross-method convergence of well-being measures. *J Pers Assess*, 57 (1), pp. 149-161.

Shen, J., & Dicker, B. (2008). The impacts of shiftwork on employees. *The International Journal of Human Resource Management*, 19 (2), pp. 392-405.

Siraj, R., & Ravichandran, N. (2012). Shift Work: Evaluation of Employee's Physical well being and its Impact on Quality of Life. *International Journal of Exclusive Management Research*, 2 (8), pp.1-24.

Spector, P. E. (1985). Measurement of human service staff satisfaction: development of the job satisfaction survey. *American Journal of Community Psychology*, 13 (6), pp. 693-713.

Watanabe, S., & Judge, T. A. (1993). Another Look at the Job Satisfaction-Life Sstisfaction Relationship. *Journal of Applied Psychology*, 939-948.

Wedderburn, A. (1996). *Compressed Working Time*. Dublin, Ireland: European Foundaqtion for the Improvement of Living and Working Conditions.