IDENTIFICATION OF FACTORS AFFECTING WORK - FAMILY CONFLICTS:

A CAUSE STUDY FROM AN APPAREL INDUSTRY

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Degree of Master of Science

Department of Mathematics

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DECLARATION OF THE CANDIDATE

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ABSTRACT

Managing conflict between work-family roles is a critical challenge for individuals and organizations. In recent decades, there have been a considerable situation that have influenced causes and consequences of conflict between work and family. This refers to conflicting role pressures between job and family that are incompatible. Only few studies related to work-family conflicts (WFC) have been carried out in Sri Lanka, but such studies were not concentrated on apparel industries. This study was therefore carried out to find out the base for work-family conflict and to find out the factors which significantly influenced work-family conflict. The organizational context of the study was Hirdaramani Mercury Apparel (Pvt) Limited (HMAPL), Seethawaka. Data were collected through a structured questionnaire and the sample size of the survey was 265 machine operators. The sampling method was stratified random sampling. Data were analyzed by using multiple regression and factor analysis. To carry out regression analysis, multiple correspondence analysis (MCA) was carried out to convert the Likert scale data into continuous data. It was found that the observed data satisfied all necessary requirements for factor analysis (KMO statistics, reliability test and Bartlet test for true correlation matrix). The three factors related to WFC are time based conflict, strain based conflict and behavior based conflict. These factors are invariant on the type of orthogonal rotation and the method of factor extraction. WFC is significantly and positively influenced by work overload (WO) and interpersonal conflict with coworkers and supervisors (IPC) and of these two factors, the impact on WFC from WO is much higher than from IPC. The study found that (i) priority of work arrangement, (ii) dependent care support, (iii) work pressure, (iv) flexibility for work and (v) conflict with supervisors are the five common factors relate to the statistical properties of the selected 18 variables among the variables related to the two significant independent variables on WFC. These five factors are also invariant on the type of rotation and the method of factor extraction. The inferences derived from this study would make a novel contribution to Hirdaramani Mercury Apparel (Pvt) Limited, Seethawaka to minimize the matters regarding WFC with their employees. It is recommended to carry out similar studies at regular intervals not only at HMAPL, but also for other industries.

Keywords: Factor Analysis, Interpersonal Conflict with Supervisors. Multiple Correspondence Analysis, Work-Family Conflict, Work Overload.

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LIST OF ABBREVIATIONS

Abbreviation	Description
HMAPL	Hirdaramani Mercury Apparel (pvt) Limited, Seethawaka
WFC	Work-Family Conflict
MCA	Multiple Correspondent Analysis
WO	Work Overload
WFB	Work-Family Benefit Utilization
FLX	Flexibility
IPC	Inter Personal Conflict
ANOVA	Analysis Of Variance
VIF	Variance Inflating Factor
TOL	Tolerance
FA	Factor Analysis
KMO	Kaiser Mayer-Olkin

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CHAPTER 1

INTRODUCTION

1.1 Background of the Study

The Global Textile Industry, particularly the Apparel Industry has undergone remarkable changes in the past few years. The Garment Manufacturing Industry and the Garment Companies in developed countries are now always on a lookout for cheap source of garment production. The days are gone when the textile garment industry was concentrated in the consumption hubs of United States, European Union countries and other developed countries of the world. The clothing wholesale supply is increasing worldwide in all the sectors of the industry, whether they are men's clothing, women's clothing, kids wear or infant wear. The elimination of global export quotas has led to a shift towards low cost countries having strong and established clothing industry especially the Asian countries. At present, few countries like Bangladesh, Thailand, Cambodia, Sri Lanka and Pakistan contribute major share in foreign exchange to their countries from Textile and Clothing trade, though their share in the world market is not very significant (Abeyrathna *et al.,* 2013).

Sri Lanka's apparel industry began to grow significantly in the 1980s as an alternative to India's garment manufacturers, because of its open economic policy as well as the trade and investment friendly environment. Under the Multi Fiber Agreement quota regime Sri Lanka became an attractive new venue for businesses. In 1985, Martin Trust, one of the pioneers in the development of "speed sourcing" for the American fashion retail sector, began working with Sri Lankan textile and apparel companies. In 1986 and 1987 Martin established joint venture partnerships with The Omar Group (formerly known as LM Apparels and part of the Brandix group) and The Amalean Group which helped making the country more competitive through knowledge transfers and technology, attracting further foreign investors. These were the first of nearly two dozen joint venture companies in Sri Lanka which made the country competitive in the garment sector. The inclusion of trust's partnership with German

brassier maker, Triumph International, and Sri Lankan company, MAS Holdings, to create a new venture called Bodyline.

When the United States and other countries eliminated quantitative restrictions on garments produced in China, many garment facilities in Sri Lanka were consolidated. As of 2010, most of the exports to the United States are from MAS or Brandix, with smaller amounts coming from the Hirdaramani Group & Jay Jay Mills Groups. Together, these three companies account for a majority of the value of exports of garments to the US market (Kapuge & Smith, 2007).

Hirdaramani Group is one of the major investor in the country and it began in the early 1900s. Parmanand Hirdaramani set up the first Hirdaramani retail store in Fort, Colombo. The pioneering Hirdaramani spirit took flight as Parmanand introduced the idea of same-day tailoring for passengers of cruise liners that docked at the Colombo Harbour. Progressing from a single retail store founded in the early 1900s, today the Hirdaramani Group is a global enterprise with a diversified network spanning more than sixty thousand associates and six countries. Hirdaramani group has developed their business for six diversified sectors. They are apparel, power, leisure, retail industry IT and financial services. They are the pioneers of apparel industry since early 1900's. (Hirdaramani Group of companies, 2017).

The Hirdaramani Apparel sector of group is divided into two clusters as knit and woven based on their product portfolios. There are twenty manufacturing units across Sri Lanka and two in Ethiopia & Vietnam. The Hirdaramani Knit Cluster focuses on the production of knitted garments for Men, Women and Children. The cluster operates over 180 production lines and total capacity of 5 million pieces per month. (Hirdaramani Group of companies, 2017).

To achieve their goals in the global market, efficient production is the most important factor. Hence, production department is the heart of the company. Organization always expects the maximum contribution from their employees. Furthermore, they believe

that dedicated workforce is a valuable asset to any organization to perform more than their usual duties and responsibilities.

1.2 Work-Family Conflict

The family is a very small unit in every society and it is the base of the society itself. It also contributes to develop culture and economy. Family can be defined as "a group consisting of two parents and their children living together as a unit" (Netemeyer, 1996). As a person, everyone plays a vital role in his or her family. An employee also plays a vital part in their office or factory. Work is the part of human life. It is defined in same as "activity involving mental or physical effort done in order to achieve a result. The work-family conflicts has been identified as one of the issues propelling any society's damage in various aspects; social, cultural and economic. Administration of the working place is committed to a sustainable development strategy. Protection of the social life of workers, maintenance of working environment and facilities, and the maximization of organizational economic benefits to the larger cross sections of the business. Further employee's health and performance are directly affected by work-family conflicts and inevitable result cannot be avoided from the employee functionalities in organization (Fernando, 2015).

The concept of work-family conflict was first proposed by Kahn *et al.,* (1964). According to them, work-family conflict is, "the pressure coming from the roles in family and work, and being unable to fulfill the demands of both roles". In other words, the participation in work-family makes it impossible to fulfill the demands from the family-work. It was also defined to be the role that conflict and pressure caused due to incompatibility at some level between the aspects of work and family. Work-family conflict was a bi-directional concept, and could be divided into two situations which are either work that interfered with family or family that interfered with work (Frone *et al*., 1992). When family problems and duties interfere with job tasks, the unfinished job tasks will, in return, interfere with family life. On the contrary, when the problems and duties from work interfere with the implementation of family responsibilities, these family responsibilities will, in return, interfere with the work. One source of the work-family conflict is that the time and content of the work of the

workers could not be coordinated, As a result, tensions would occur. This would make it impossible to perform normal family responsibilities, and thus role conflict would occur. Therefore, the role conflict between the family role and the job role is assumed to be incompatible in work-family conflicts. (Netemeyer *et al.*, 1996).

1.3 Reasons of Work-Family Conflict in Apparel Industry

The current situation of the apparel industry in Sri Lanka has struggled with difficult situations for the retaining and success. The industry faces issues such as labour shortage and cost increase. Furthermore, the investment in the apparel sector has changed over time. Labour turnover is high due to some invisible problems in this industry. In 2013, 30,000 vacancies were identified and labour shortage was a serious issue in the apparel industry. One of the major reasons for the labour shortage is the attitude of the people and the situation created with the society's low respect to the apparel industry (Fernando, 2015b).

In the modern world there is a huge competition all over the world in the race for living (Ahmad, 2008). The reality of today's diverse workplace is increasingly populated with mothers, single parents and dual career couples. There few families consist of a father who works and a mother who stay home to care for the house and the children. In the current situation of employment, the more female workers are engaged in apparel industry than male. As a result, women have greater conflict between the work and house related roles than men. In recent years, researches (Akkas *et al*., 2015; Nawaz & Pangil, 2016) have increasingly focused on examining various factors related to work-family conflict due to the changing nature of work and family responsibilities. The nine factors they considered are briefly described below.

1.3.1 Longer Working Hours

This factor became the major reason for the work-family conflict. This reason could have negative consequences for families and for workers who struggle to balance the demands of work and family roles. Longer working hours result in job stress among the employees. Many female employees are under tremendous job stress because of their inability to manage work and family demand (Akkas *et al.,* 2015).

1.3.2 Work Schedule

Employees work schedule often conflicts with their family life. Many married female employees do not like to work in the night shift.

1.3.3 High Work Demand (Work Overload)

Work demands are perhaps the most consistent predictor of work-family conflict. Other work demands connected with work-family conflict include compulsory or unexpected overtime, shift work, job pressure, excessive work, job hassle, and working fast or having many interruptions.

1.3.4 Family Demand

Women in Sri Lanka are supposed to take care of children and other family members. Society expects that women should be family responsive. Most of the researchers showed that married working women experience more conflict than non-married women. Working women experience conflict due to time pressure. The reason is they need much more time to get involve in their family role requirements.

1.3.5 Lack of Work Family Benefit Utilization

Work-family benefit such as supports for child care and elder care, has largely been viewed as a practical response to the increasing proportion of women in the work force. If the company offered these facilities, they could minimize the absenteeism and turnover.

1.3.6 Interpersonal Conflict with Supervisor and Co-workers

Interpersonal conflict negatively impacts the job satisfaction and positively relates to turnover intentions.

1.3.7 Unsupportive Family Members

This reason directly impacts on the female employees, when they do not find necessary support from their family members. Traditionally, male members do not engage in household activities. On the other hand, working women play dual-roles in our traditional society. They need to perform responsibilities both in family and workplace.

1.3.8 Demand for Leisure Time

After work, more employees do not have time to take a rest at home although they are very tired.

1.3.9 Personal Problems

Personal problems of employees make them irritate at work. They engage in a job which is no more enjoyable and interesting

1.4 Reasons of Turnover in Apparel Industry

Employee turnover has become a burning issue in Sri Lankan apparel industry. Employee turnover is widely considerable issue for the organizations. It means when a person quits from the given job for any reason. It is called as “employee turnover”. "A permanent movement beyond the boundary of an organization" (Nawaz, 2016). Employee turnover has got a substantial attention from organizational management, HR professionals and industry psychologists. An organization’s productivity and endurance can be critically affected by general labour turnover rates of labour force of the organization. There are two types of employee turnover happening in companies, Voluntary and Involuntary. Involuntary turnover means an organization fires employees by itself. Employees may be let go for a wide range of reasons, it can be like retirement cases, organization needs to cut cost, restructure or downsizing, low performers firing from the job or dismissals, permanent disability or employees’ death case etc. Voluntary Employee Turnover means an employee leaves the company with his own intension. It might be due to better job opportunity, existing job dissatisfaction, bad working conditions or negative behavior of supervisor etc. High level of voluntary turnover seems to be negative for the organizational growth. According to Nawaz (2016) the factors that influence the labour turnover are:

- Job Satisfaction
- Organizational Commitment
- Work Environment / Supervisor Behavior
- Less Career Growth
- Monetary Reward

- Better Employment Opportunity
- Employee Age Factor
- Employment Tenure

Job Satisfaction

Job satisfaction is more about happiness in the work place. It creates interest in the job. We can define job satisfaction as "A pleasurable or positive emotional state resulting from the appraisal of one's job or job experiences.

Organizational Commitment

Organizational commitment plays an important role in restricting an individual's mind toward resignation. Committed employees always have better attendance record and stay for long period of time in an organization as compared with non-committed employees.

Work Environment

Working conditions play very crucial role to increase job satisfaction and organizational commitment in the workforce community. The work environment includes factors or features that have all work conditions and situations for employees.

Less Career Growth

There are certain reasons for less career growth in the industry. Majority of the workers are uneducated, lack of proper skills, less personal relations in the industry, a large section of the workforce come from rural area and even some of them don't have enough sense to grow or develop themselves.

Monetary Reward

Monetary reward has been defined in such a way like cash or equivalent that an employee receives against his services from the employer. Here equivalent reward includes fringe benefits, medical facilities and provident fund etc.

Better Employment Opportunity

Better opportunity for the labour force reflects the employment available in another organization, but in the same industry. It is clear that a skilled worker of textile sector cannot join another sector. It might be possible that this opportunity is better because of improved designation, salary increment, better working condition or good behavior of Manager etc.

Employee Age Factor

From the study, this concept reveals that the workers' age also contributes towards the decision to stay or leave the job. It is crystal clear that age has a positive relation with organizational commitment and job satisfaction. A mature person has more confidence and patience in the work place than a younger one.

Employment Tenure

Employment tenure is the time period that a person spends on the job in an organization. It has negative relation with voluntary employee turnover. When an employee getting older in a company and promoted on senior designations, then he or she has less willingness to quit or leave the job.

1.5 Identify Work-Family Conflict in Hirdaramani Mercury Apparel (Pvt) Limited (HMAPL), Seethawaka via Pilot Survey

1.5.1 Status of HMAPL

Hirdaramani Mercury Apparel (Pvt) Limited (HMAPL) Seethawaka, in Sri Lanka is the seventh facility of the Hirdaramani Group of Companies producing high quality garments to the global market. Their core objective is to provide their own workforce with meaningful jobs and to deliver high quality products to end users. They believe in treating the work force respectfully with decent working conditions and reasonable payment terms for benefiting both parties increasing commitment and productivity. HMAPL in Seethawaka was established in 1999, within the Seethawaka industrial park. It belongs to the Hirdaramani Group of Companies, a diversified conglomerate in to the fields such as apparel manufacturing, tourism, and hotels. Their core business

is manufacturing and exporting ready-made garments to USA, UK and Canada & some of Asian Countries.

Their major customers are Sanmar, Levi's, Vanhusane, Columbia, Tesco, M &Co Wal-Mart and PVH. This company is specialized in the manufacture of Pants, Jackets, T-shirts, Blouses, Nightwear, basically Outer wears of Men, Women & Children's. It has about 1650 employees and including 850 are machine operators. It has a fully integrated infrastructure encompassing manufacturing, product development, design, printing, embroidery, washing, packaging and exporting. Hirdaramani is a one-stop shop for the apparel industry. Hirdaramani Apparel has the capacity and the expertise to handle a range of internationally renowned clients from the world's leading designer labels.

According to the turnover details of HMAPL, Seethawaka, there are huge numbers of turnovers reported. Since 06/03/2016 to 06/03/2017, 1516 employees vacated the organization. Figure 1.1 indicates employee turnover of HMAPL for last two years.

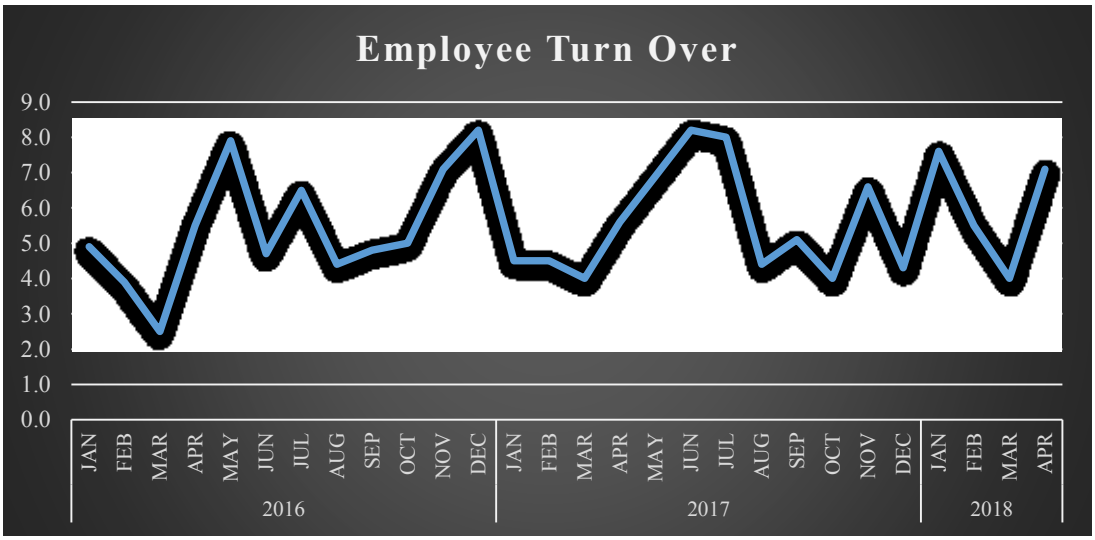

Figure 1. 1 Employee turnover of Hirdaramani Mercury Apparel (Pvt) Limited

1.5.2 Pilot Study on Work-Family Conflicts

Pilot study on the above was conducted by (Aracchci, 2016) to find out whether any workers face to work-family conflict in HMAPL and if so which worker category fully

faced to the work-family conflict in the organization. For this study a random sample of 54 consist of employees of primary staff level (Assistant Level) and worker level (Sewing Machine Operators) was selected. In this sample, 25% respondent were staff level and 75% were sewing machine operators. Most of the staff level employees indicated that, they maintain very good work life balance. However majority of the sewing machine operators told that their life balance was at a poor level. It seemed that most of them were facing difficulties with work- family conflicts. Summary results of this pilot survey is resented in Figure 1.2.

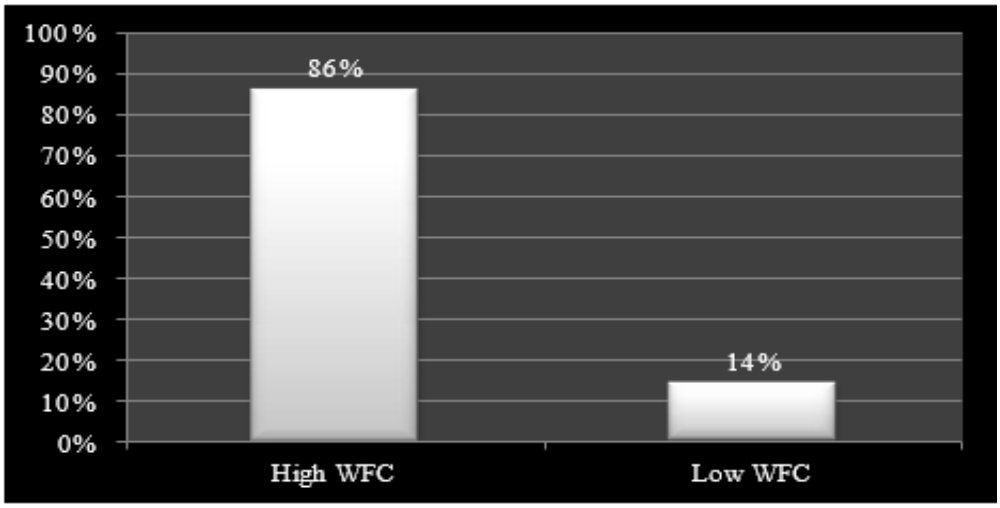

Figure 1. 2 Percentage of Work- Family Conflict from pilot survey

Having identified the above, as a second part of the pilot study the researcher visited the home of each respondent (that is, 54) and acquired various details of individuals (employees) and their family problems. It was found that 89% faced work-family matters (Table 1.1) and as a result, they have taken decisions to leave or get more leaves. Rest of 11% were relate with other reasons such as health matters and others.

Table 1. 1 Homes Visit Findings

	Reason		
	Work-Family Matters	Other Matters	Total
Number of Employee	48	6	54
Percentage of Employee	89%	11%	100%

The results concluded that majority of machine operator employees in HMAPL face work-family conflicts and the management wants more details. Furthermore, data collected were not sufficient to find the factors that affecting to work-family conflict in the organization.

1.6 Objectives of the Study

On view of above explanation, the objectives of the study are,

1. To find out what variables are associated with work- family conflicts.
2. To identify the factors that affected to work-family conflicts.

1.7 Significance of the Study

The findings of this study will directly beneficial for the management of HMAPL from the company point of view as well from the employer point of view. Work force includes more dual-earner couples who have responsibility for the care of children or elderly dependents, as well as more dual-professional couples where both have careers, not just jobs. So, this study is important from an educational point of view for personal life as well as organizational purposes, because in current scenario, work family conflicts have become a huge problem to everyone.

1.8 Limitations of the Study

Several limitations are apparent in this study. HMAPL, Seethawaka is consisted of a huge number of work individuals. However, as the sample is represent employees working for large co-operations; it may not be represent the majority of men and women who work for smaller firms or those who self-employed. This study will be

limited to the employee‘s ideas about work-family conflict. Therefore, responses are affected by the participants’ biases. In addition, most employees work in or near urban areas, so the applicability of this research to those who work in rural settings is uncertain also, because of the culture of those two contexts are different from each other.

1.9 Chapter Organization of the Dissertation

The organization of this thesis is as follows. First chapter gives information about company providing background of research as well as problems of the research, question, objective of the study, limitation and significance of the study. Second chapter consists with the literature review which includes the concepts, theories, findings and arguments of the previous researchers about the work-family conflict and factors which influence the work-family conflict. Third chapter refers to the overall approach to the research process, from the theoretical foundation to the collection and analysis of the data. The chapter basically consists of two parts, research design and data collection. The research design provides a general explanation for the way the research was of carried out including source of data, population and sampling. Moreover, data collection instruments & techniques were also discussed. Finally, this methodology chapter provides a foundation for continuing analyze segment of the research. Fourth chapter presents result and discussion of the data analysis. The last chapter gives conclusions and recommendations.

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction to the Chapter

This chapter contains the related to work-family conflict, and principles and concepts used by other authors. The selected literature was conceded to find the variables and background of the work-family conflicts of the present study.

2.2 Work Family-Conflicts

Research that examines work-family conflict (WFC) has advanced over the last few decades and has led to the development of theoretical models, empirical studies, and organization-sponsored work-family initiatives. As organizations attempt to help employees manage the balance between work and family demands, there is a growing body of research on the topic of WFC. Besides there has been rapid increase of married women entering the work force while continuing to maintain the majority of the family and household responsibilities. The interest in the topic has also in large measures being fuelled by the recognition that work-family concerns are highly salient for the well-being of employees (Ahmad, 2008). According to Hill (2001) work-family balance may be defined as the degree to which an individual is able to simultaneously balance the temporal, emotional, and behavioral demands of both paid work and family responsibilities.

In recent years, research has increasingly focused on examining work-family issues due to the changing nature of work and family responsibilities. WFC refers to an incompatibility between the demands of work and family to a working person. Work-family conflict occurs when an individual has to perform multiple roles: spouse, workers and parent. To be performed adequately in each of these role demands time, energy and commitment. WFC exists when pressures from work and family roles are mutually incompatible, such as participation in one role is made more difficult because of participation in another role (Akkas, 2015).

Work-family conflict has been conceptualized by Greenhaus and Beutell (1985) on the basis of source of conflict. They divided work-family conflict into three types of conflict, namely, time-based, strain-based and behavior-based conflicts. McDermid (2005) pointed out that most of the researches based on Greenhaus and Beutell's 1985 conceptual model to measure work-family conflict. However, different instruments (measurements) are quite similar about the way some questions are formulated, namely, those questions that aim to detect the degree of work-family conflict and use 5 or 7-step Likert Scale for the studies. Netemeyer *et al.,*'s (1996) instrument is different from other measures when tries to detect the work-family conflict. Instead, they developed an initial pool of 110 items, including items from former measures, and 36 new items, and considering both directions of the conflict, time, and strain. Accordingly, that argument is used to explain the main form of work-family conflicts.

2.3 Time Based Conflict

Time-Based Conflict Multiple roles may compete for a person's time. Time spent on activities within one role generally cannot be devoted to activities within another role. Time-based conflict is consistent with the excessive work time and schedule conflict dimensions identified by Kahn *et al*., (1964). However, problems of coping with work and domestic responsibilities remain especially acute for employees with caring responsibilities and especially women. Some studies have found parental demands to mean less time and energy to devote to the organization and time-based work-family conflict and its consequences are believed to be most salient for women (Major *et al.*, 2002). Full-time female employees are still found to have greater concerns about childcare and housework and the greatest desire for flexible scheduling (Fernando, 2015b). Work-family conflict for women is also likely to be more acute given the tendency towards segregation of women into low skilled and low paid jobs.

Time based conflict can take two forms. The first one is time pressures associated with membership in one role may make it physically impossible to comply with expectations arising from another role. The second one is pressures that also may produce a preoccupation with one role even when one is physically attempting to meet the demands of another role (Greenhaus *et al.,* 1985).

The findings of the empirical research are generally consistent with the notion of time-based conflict. Work schedules, work orientation, marriage, children, and spouse employment patterns may all produce pressures to participate extensively in the work role or the family role. Time-based conflict is experienced when these time pressures are incompatible with the demands of the other role domain.

2.4 Strain Based Conflict

A form of work-family conflict involves role-produced strain, where strain in one role affects one's performance in another role. Potential sources of strain-based conflict include the emotional demands of the workplace. Many researchers have pointed out that work pressures may cause the symptoms of depression, apathy, tension, irritability, fatigue, and anxiety the roles are incompatible in the sense that the strain created by one makes it difficult to comply with the demands of another. For example, employees who suffer from depression or tension will find it difficult to be an attentive partner or loving parent, thus strain-based conflict can contribute to work-family conflict in both directions (Abdulwahab, 2005). These findings suggest that strain, conflict, or the absence of support in the family unit may contribute to work-family conflict. As with the work domain, family role characteristics that produce extensive time commitment also may directly or indirectly produce strain (Greenhaus *et al.*, 1985).

2.5 Behavior Based Conflict

This means that the behavior pattern of a role may not be compatible with the behavior of another role. The members of the family may need warm and emotional interaction from the worker, but when employee is unable to satisfy the expectations of the different roles, conflict between these roles may occur. The behavior patterns of male workers (such as logical, objective, dominant, and authoritative patterns) may not be able to satisfy the behavior demands by his children (Wayne, 2002). Similarly, young managers experienced two aspects that could not be coordinated with each other, namely the expectations from their families and predictable emotion at work. It can be difficult to give consideration to both aspects at the same time (Bartolome, 1972).

Overall, researchers are recognizing that work-family conflict is a complex, multi-dimensional construct. Work-family conflict is conceptualized as a construct with dual direction (work-to-family and family-to-work), multiple forms (time-based, strain-based, and behavior-based) and specific to multiple life roles (e.g., spouse, parental, elder care, home care and leisure). Acknowledging the prevalence of work-family conflict and its negative outcomes, it is therefore critical to develop a model on predictors of work-family conflict (Ahmand, 2008).

Work-Family Conflict model is developed based on the stress-strain model and the social identity theory, as well as the work of researchers (Ahmand, 2008). According to the stress-strain model, the predictors are referred to as stressors and the conflict as strain. According to the social identity theory, that people classify themselves in various social categories which define their identities and the roles they hold in a social environment. Each of these roles provides a different aspect of identity to the individual. Some will view being a valued employee as the most important aspect of their identity, while others may gain more pleasure from the role of spouse and therefore value it more. Conflict can arise when an individual who values a particular role is forced by situational constraints to spend less time than he or she would like in that role. The model of suggests that these constraints or predictors could be job-related, family-related and individual-related factors predicting the extent of work-family conflict experienced by an individual (Ahmand, 2008).

2.6. Job Related Factors

There are many studies examining the characteristics of work domain as predictors of work-family conflict. One of the characteristics is job type and conflict levels. Employees in managerial and professional positions report higher levels of work-to-family conflict than those working in non-managerial and non-professional positions (Wiley, 1987). There was a positive association between job category level and work-family conflict whereby managers experienced greater work-to-family conflict than lower category employees. Related to the job category level in the study was the employees' education levels (Carlson *et al.*, 2004).

Studies suggest that work time commitment is related to the intensity of work-family conflict experienced by employees. Long hours could have negative consequences for families and for workers who struggle to balance the demands of work and family roles. Job-related characteristics are job type, work time commitment, Job involvement, role overload and job flexibility (Ahmand, 2008).

2.7 Family Related Factors

Several aspects of the family structure are associated with work-family conflict including dependent care responsibilities, especially care for the elderly and disabled children or adults and life cycle stage. Studies have shown that family involvement, which refers to the degree to which individuals identify with their family, the relative importance of the family to individuals' self-image and self-concept, and individuals' commitment to their family are related to work-family conflict. There was a positive relationship between family involvement and work-family conflict, a relationship that was stronger for males than females (Greenhaus *et al.*, 1985). Main factors of family-related issues are number of children, life-cycle stage, family involvement and child care arrangements.

2.8 Individual Related Factors

Besides job and family-related factors, a number of individual-related factors could contribute to the experience of work-family conflict. The incorporation of individual values into the work-family conflict research is important because life role values are central to organizing meaning and action for working people. Another individual-related antecedent of work-family conflict that has not been much studied is gender role orientation. This refers to the beliefs that the individuals hold about normal roles of men and women in meeting family and work responsibilities (Carlson *et al.*, 2000). Conceptually, gender role orientation is seen as ranging on a continuum from traditional gender role orientation whereby the roles of men and women are seen as distinct and separate, to a focus on non-traditional gender role orientation characterized by role sharing between men and women. Main individual-related factors are life role orientation, locus of control and perfectionism. (Ahmad, 2008).

Becker and Moen (1999) identified a number of sources of work-family conflicts. Postponing children's activities, hiring assistance with childcare and household duties, and scaling back work are some of them. The framework of the study has contributed in three ways. First by focusing on externally oriented, structural strategies for reducing the level of work-family conflict instead of internal coping mechanisms. Second by illustrating how work-family management strategies impact new venture performance and third by providing guidelines for choosing among these strategies.

2.9 Other Factors Influence on WFC

Two types of conflict that can occur within a company are functional and dysfunctional. Functional conflict is healthy, constructive disagreement between groups or individuals, while dysfunctional conflict is unhealthy disagreement that occurs between groups or individuals. Past studies have shown that WFC is influenced by a variety of dysfunctional outcomes, including psychological well-being depression, marital contentment, and life happiness, job satisfaction, organizational commitment, burnout and turnover. There are many studies examining the characteristics of work domain as predictors of work-family conflict.

2.9.1 Work Overload

Work overload as, "everyday tasks which are so demanding that coping is only possible with very high effort". There are two groups of work overload as, high work overload and low work overload. If too many tasks and duties have to be fulfilled, there is an increased possibility that the individual may not be able to manage all of them and this is often followed by negative consequences such as criticism, punishment and blame. If all the duties and responsibilities are not managed it may lead to conflict in between work and family premises (Schlotz *et al.*, 1998).

Work overload has been found to be associated with reduced levels of staff well-being. Work overload may significantly contribute to occupational health problems among employees (Vallone *et al*., 2001). Workload was related to negative affect (both at work and at home) and employee perceptions of work-to-family conflict. Moreover, employees' social behaviors at home were predicted by both work-to-family conflict

and home positive affect. According to their findings, daily workload is an important predictor of affective states and work to family conflict. Further, they explained that when employees are under heavy workloads, the strain or psychological distress caused by heavy workloads may still lead to higher work-family conflict.

2.9.2 Work-Family Benefit Utilization

Family friendly or family-supportive programs and benefits refer to services that enable employees to better manage the interface between work and family. As women are still responsible for the majority of child care and household tasks (Greenberger, 1999). Work-family conflict can be diminished by establishing family-friendly policies in the workplace. Some of these policies include maternity, paternity, parental, and sick leaves, providing child care options either on-site child care center at the business, references to close child care centers, or supplemented child care incomes for the families placing their children in a child care center and health care insurance. To allow these policies to work there is a need to make sure that all the employees alerting on those policies.

Implementation of family-friendly benefits can help employees manage multiple work and non-work responsibilities, the availability of these benefits alone does not address fundamental aspects of the organization that can inhibit employees from successfully balancing career and family. It seems that there is a negative relationship between work family benefit utilization and work-family conflict. Most studies have examined the direct relationship between the availability of family friendly benefits with outcomes of interest such as organizational commitment or job satisfaction and family-supportive work environments were support employees to balance work and family responsibilities (Allen, 2001).

2.9.3 Flexibility

Flexibility is defined as, “the ability to rearrange one's work hours within certain guidelines offered by the company” (Hill *et al.*, 2001). Flexible working system is basically classified in to working system centering on time flexibility (also called flexible working hour system) and working system centering on place flexibility.

Flexible working hour system mainly consists of flextime, compressed work week, work share, and so on. Working system centering on place flexibility mostly refers to telecommuting.

Majority of the researcher also suggested that flexible working shift system definitely has positive effect on reducing WFC and improving standard of life and job satisfaction. Studies indicate that flexibility in the timing of work have been generally well received by workers and have contributed to organizational goals (Hill, 2001).

More insights have been derived when comparing casual and permanent workers their research. Casual workers' work intensity is high. They had unpredictable working hours, and consequent work-life conflict produced problems with diet, exercise and sleep. While work intensity was also an issue for many permanent workers, more stable and controllable working hours appeared to diminish work-life conflict and its subsequent negative effects (Bohle *et al.,* 2004).

2.9.4 Interpersonal Conflict with Supervisors & Co-workers

Interpersonal conflict with supervisors is defined as tension or disagreement within the employee and supervisor relationship. Interpersonal conflict with supervisors can arise due to a variety of work-related situations and behaviors such as lack of resources, work overload, fairness issues, role conflict or role ambiguity, and incorrect instructions on how to perform certain job tasks (Berscheid *et al.,* 2000). Interpersonal conflict with co-workers is defined as tension or disagreement within an employee-co-worker relationship. Interpersonal conflict with co-workers may be due to differences among co-workers' personalities, bullying behavior, free riding behavior, competition, or differences in the goals of co-workers and is a prevalent problem. Interpersonal conflict represents the extent to which an employee has negatively charged social interactions with his or her co-workers (Eatough, 2010).

Bad relationships may have a stronger impact on individuals' lives than positive relationships (Berscheid *et al.*, 2000). Interpersonal conflict with supervisors and

coworkers may be differentially related to organizational and personal outcomes. In contrast, an overall measure of interpersonal conflict, which confounds this distinction, would be related to both organizational and personal psychological outcomes including turnover intentions, absenteeism, and organization commitment (Aline *et al.,* 2000). Interpersonal conflict may detract from group members' ability to meet performance goals. In fact, interpersonal conflict generally has a negative effect on the performance of groups. Thus, interpersonal conflict is an important occupational stress or which may influence important organizational outcomes. Finally, those outcomes created family problems too. Interpersonal conflict with one's supervisor would be related to poor organizational outcomes because an employee's relationship with his or her supervisor is based on an authority ranking model of interpersonal relations (Eatough, 2010).

2.10 Summary of the Chapter 2

In the above literature review, different perspectives of work-family conflicts (WFC) were explained. Studies were carried out for various organizations. The common model identified in most of the studies is that work-family conflict can be divided into three types of conflicts such as time-based, strain-based and behavior-based conflicts. Another model of suggested by some authors is that the constraints or predictors related to WFC could be job-related, family-related and individual-related factors predicting the extent of work-family conflict. However, the review noted that not much work related to work-family conflicts in Appeal Industry in Sri Lanka has been carried out. Nevertheless, the results obtained from the review was useful to design the conceptual frame work for this study.

CHAPTER 3

METERIALS & METHODS

This chapter consist of two parts namely research design and data collection. Research design provides a general explanation for the way the research study was carried out including source of the data, population and sampling. Data collection provides the details of the questionnaire.

3.1 Conceptual Frame Work

The purpose of this research is to examine the impact of work family conflict on employees in HMAPL. In this study the following four factors that may cause to work-family conflicts are considered.

i Work overload

ii Work family benefit utilization

iii Flexibility

iv Interpersonal conflict with coworkers and supervisors

The model outlined in Figure 3.1 depicts the conceptual frame work for the study.

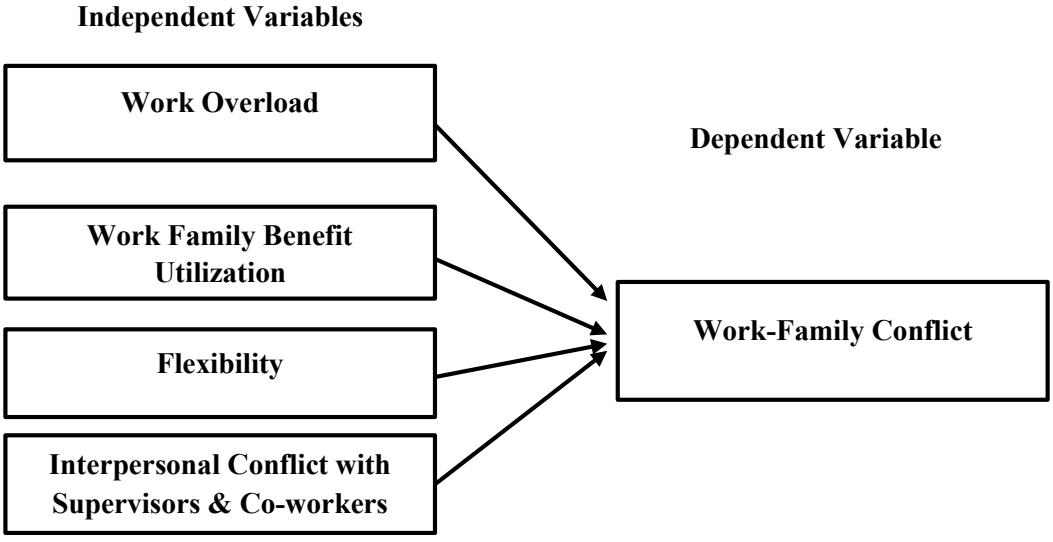

Figure 3. 1 Conceptual Frame Work for the Study

3.2 Population and Sample

3.2.1 Population of the Study

Population refers to the entire group of people, events or things of interest that the researcher wishes to investigate (Schlotz *et al.,* 1998). Hirdaramani Mercury Apparel (Pvt) Limited, Seethawaka currently operating with over 1650 employees in the factory premises, of which 850 employees are machine operators. According to that the population of the study 850 sewing machine operators. The company profile and the functional areas of the company are shown in Appendix 1 and Appendix 2 respectively.

3.2.2 Sample Size

The sample size of any study is generally determined during the designing stage of the study. However, before determining the size of the sample the following four factors needed to be drawn from the population; (a) how much sampling error can be tolerated, (b) population size, (c) how varied the population is with respect to the characteristics of interest and (d) the resources such as cost, manpower, time etc. Accordingly, the method suggested by Krejcie and Morgan (1970) was used. They used the following formula to determine sampling size (say, n).

$$n = \frac{x_1^2 * N * p(1-p)}{(N-1) * d^2} + x_1^2 * p * (1-p) \dots\dots\dots\dots (1)$$

n = required sample size

x_1^2= the table value of Chi-square for one degree of freedom at the desired confidence level

N = the population size

p = the population proportion for the variable interest (assumed to be 0.50 since this would provide the maximum sample size)

d = the degree of accuracy expressed as a proportion (0.05)

Based on the above formula the required sample size was found as 265. As both male and females are sewing machine operators and the sample size was proportionally allocated among gender as shown in Table 3.1. Thus gender was considered as strata and thus the sampling procedure is stratified random sampling.

Table 3. 1 Distribution of Sample Size among Gender

Gender (Strata)	Number of peoples in the strata	Sample size among the strata
Male	198	(265/850)×198 = 62
Female	652	(265/850)×652 = 203
Total	850	265

3.3 Sources of Data.

In this study, both primary and secondary data were used to conduct the information. Primary data were collected through distributing questionnaires to employees who were included to the sample and the secondary was collected from various sources such as, company records and company websites.

In order to acquire the required information for this study a structural questionnaire was designed (Appendix 3). The questionnaire was pre-tested before it is finalized. The questionnaire has two parts. Part 1 includes the questions related to demographic aspect and part II consists of questions related to various aspect on work-family concept. Most of the questions have a 5-point Likert scale where 0 = 'strongly disagree' and 5 = 'strongly agree'. A brief description of questions is shown in the tables shown below.

3.3.1 Questions Related to Work-Family Conflict

Work-family conflict typically is defined as "a form of inter role conflict in which the role pressures from the work and family domains are mutually incompatible in some respect. That is, participation in the work (family) role is made more difficult by virtue of participation in the family (work) role (Greenhaus & Beutell, 1985). The questions related to work-family conflict are shown in Table3.2.

Table 3. 2 Variables and Questions Related to Work-Family Conflict

Variable	Dimensions	Related Questions
Work-Family Conflict	Time based conflict	Q1,Q2,Q3,Q4,Q5,Q6
	Strain based conflict	Q7,Q8,Q9,Q10,Q11,Q12
	Behavior based conflict	Q13,Q14,Q15,Q16,Q17,Q18

3.3.2 Questions Related to Work Overload

Work overload is described as everyday tasks which are so demanding that coping is only possible with very high effort (Schlot *et al.,* 1998). The questions related to work overload are shown in Table3.3.

Table 3. 3 Variables and Questions Related to Work Overload

Variable	Dimensions	Related Questions
Work Overload	Work Load	Q1,Q2,Q3,Q4,Q5,Q6,Q7,Q8

3.3.3 Questions Related to Work Family Benefit Utilization

At the present time there are changes in the composition of families and the workforce, such as more dual-career couples and working mothers with young children, have increased the likelihood that both male and female employees have substantial household responsibilities in addition to their work responsibilities. So, in response to these changes, many organizations have implemented programs or policies designed to help accommodate the needs of today's diverse workforce (King, 2012). According to the authors, work-family friendly benefits includes interventions such as flexible work schedules, child-care referrals, and leaves of absence. In this study 16 items were used to measure work-family benefit utilization.

Table 3. 4 Variables and Questions Related to Work-Family Benefit Utilization

Variable	Dimensions	Related Questions
Work-Family Benefit Utilization	Flexible Work Arrangement	Q1,Q2,Q3,Q4,Q5,Q6,Q7
	Dependent Care Support	Q8,Q9,Q10,Q11,Q12,Q13,Q14,Q15,Q16

3.3.4 Questions Related to Flexibility

Major (2002) has claimed that flexible work arrangement is defined as "employer provided benefits that permit employees some level of control over when and where they work outside of the standard workday". Flexibility was measured with four items which were developed by Hill, *et al.,* (2001).

Table 3. 5 Variables and Questions Related to Flexibility

Variable	Dimensions	Related Questions
Flexibility	Flexible Time	Q1,Q2
	Flexible Place	Q3,Q4

3.3.5 Questions Related to Interpersonal Conflict with Supervisors and Co-workers

Berscheid & Reis (2010) indicated that bad relationships may have a stronger impact on individuals' lives than positive relationships. Interpersonal conflict with supervisors and co-workers may be differentially related to organizational and personal outcomes. In contrast, an overall measure of interpersonal conflict, which confounds this distinction would be related to both organizational and personal psychological outcomes (Carlson, 2000). According to Carlson, Interpersonal conflict at work was assessed by the interpersonal conflict at work scale and accordingly eight questions were included to measure the variable of interpersonal conflict with supervisors and co-workers.

Table 3. 6 Variables and Questions Related to Interpersonal Conflict with Supervisors and Co-workers

Variable	Dimensions	Related Questions
Interpersonal Conflict with Supervisors and Co-workers	Interpersonal conflict with supervisors	Q1,Q2,Q3,Q4,
	Interpersonal conflict with co-workers	Q5,Q6,Q7,Q8

3.4 Statistical Analyses

To ensure testability of the study, systematic data analysis was stringently followed throughout the process. Data collected was analyzed using the SPSS version 23. Descriptive analysis was conducted to evaluate demographic data on the study. The statistical methods use are Regression Analysis and Factor Analysis. Minitab Version 17.1 was used to convert Likert scale data into continuous data types to carry out regression analysis.

3.5 Factor Analysis (FA)

3.5.1 Concept of FA

Factor Analysis is one of the statistical data mining technique and it looks at the data from a different angle compared to Principal Component Analysis. FA is used to determine whether the set of observed covariance or correlation structure among the observed variables can be explained in terms of smaller number of unobservable factors, known as “latent” factors. Factor Analysis helps to find the solution of many different common factors are required to examine the pattern of relationship among the observed set of correlated variables, to identify the nature of common factors, how well do the latent factor explain the observed data set and common factors useful for the user for decision making in the areas of medical, engineering, sociology, political, finance, etc. (Peiris, 2018).

3.5.2 FA Models

Let the observed p response variables be $\mathbf{X} = X_i$ ($i = 1,2, \ldots . p$) of n subjects from a population with mean vector and variance-covariance matrix Σ. The FA model assumes that there are m (<p) underlying common factors (say, F_i $i = 1,2, \ldots . m$) and the m-factor model is written as:

$$X_i = \mu_i + \lambda_{i1}F_1 + \lambda_{i2}F_1 + \cdots + \lambda_{im}F_m + \eta_i \qquad i = 1,2, \ldots p$$

λ_{ij} is the factor loading of the j^{th} factor and i^{th} response variable, η_i is known as unique factors for a given X_i. Without loss of generality it can be assumed that $\mu_i = 0$ for all i and thus the m- factor model becomes.

$$X_i = \lambda_{i1}F_1 + \lambda_{i2}F_1 + \cdots + \lambda_{im}F_m + \eta_i \qquad i = 1,2, \ldots p$$

In a matrix from above FA model can be written as, $\mathbf{X} = \mathbf{\Lambda F} + \boldsymbol{\eta}$

Where, $\mathbf{X} = \lfloor X_1, X_2, \ldots . . X_p \rfloor^T$, $\mathbf{F} = \lfloor F_1, F_2, \ldots . . F_M \rfloor^T$, $\boldsymbol{\eta} = \lfloor \eta_1, \eta_2, \ldots . . \eta_P \rfloor^T$

1-Factor Model

$X_i = \lambda_{i1}F_1 + \eta_i$ ($i = 1,2, \ldots p$)

The λ_i s are called the "pattern" loading. Under the above assumptions, the followings are true for standardized data in 1-Factor model. F_1 is the common factor.

$V(X_j) = 1 = \lambda_j^2 + \psi_j^2$, where $V(\eta_j) = 1 = \lambda_j^2 + \psi_j^2$

$\text{Corr}\,(X_j, Y_1) = \lambda_j$ and $\text{Corr}\,(X_i, X_j) = \lambda_i\lambda_j$

2-Factor Model

$X_i = \lambda_{i1}F_1 + \lambda_{i2}F_2 + \eta_i$ ($i = 1,2, \ldots p$) and the two common factors are F_1 and F_2 . Under the above assumptions, the followings are true for standardized data in 2-Factor model.

$V(X_j) = 1 = \lambda_{j1}^2 + \lambda_{j2}^2 + \psi_j^2$, where $V(\eta_j) = \psi_j^2$

$\text{Corr}\,(X_j, F_1) = \lambda_{j1}$ $\text{Corr}\,(X_i, F_2) = \lambda_{j2}$ and $\text{Corr}\,(X_i, X_j) = \lambda_{i1}\lambda_{j1} + \lambda_{i2}\lambda_{j2}$

3.5.3 Appropriateness of Data for FA

Once it is decided to carry out FA the first step is to check whether the data is appropriate for FA. The tests to be carried out prior to FA are:

i. Correlation matrix of the observed variables
ii. Kaiser-Meyer-Olkin (KMO) Statistic
iii. Chronbach's alpha Statistic (mainly for categorical data)
iv. Normality of the variables (for continuous data if hypothesis tests to be used)

Correlation Matrix

It is required that there should have high significant correlation among observed variables. This can be tested using Bartlett test where $H_0: \Sigma = I$ vs $H_1: \Sigma \neq I$ .Thus the null hypothesis should be rejected to satisfy for FA. In other words, the true correlation matrix of the observed variables should be significantly deviate from the identity matrix.

KMO Statistics

This is a popular diagnostic measure of sampling adequacy which compares the correlation coefficients and partial correlation coefficients. This statistic can easily be obtained from SPSS. In order to satisfy the observed data to consider for FA. This measure should be greater than 0.6.

Chronbach's Alpha Statistics (CAS) – Reliability Test

Reliability is measured in the observed data set to check for the overall consistency of a measure of data when data are acquired using multiple Likert questions in a survey/questionnaire that from a scale. The CAS gives an idea about the internal consistency of data. A measure is said to have a high reliability if it produces similar results under consistent conditions. The minimum value of this statistic recommended for data consistency is 0.8. Thus the general rule of thumb is if CAS $\geq$ 0.7 then data set is recommended for FA.

Normality

This condition is necessary when statistical hypothesis tests (objective criteria) are used in FA. The standard Anderson-Darlington (A-D) test or standard Q-Q plots are used to check the normality. Normality is usually used for continuous data and when the factors are extracted using maximum likelihood criteria. It helps to test the minimum number of factors to be needed for FA. However, FA is heavily used for categorical data where normality assumption is not satisfied. (Peiris, 2018).

3.5.4 Extraction of Factors:

Among different methods proposed for extraction of factors, the most popular techniques are:

i. Principal Component Factoring (PCF)
ii. Principal Axis Factoring (PAF)
iii. Maximum Likelihood Factoring (MLF).

Principal Component Factoring (PCF)

In PCF it is assumed that the communalities for all the variables are equal to one and consequently no prior estimates are required for communalities (not defined). It is assumed that few principal components (components of which the eigenvalues > 1) would account for a majority of the observed variance of the system. In this method those principal components are considered as common factors while remaining principal components are considered as nuisance components. Therefore, extracting factors using PCF method is essentially the same as obtaining principal components in PCA. In fact, PCF is the most common and standard extraction method.

Principal Axis Factoring (PAF)

In PAF an attempt is made to estimate the communalities. The initial communalities are considered as the squared multiple correlation that each variable has all of the other response variables.

Note:

- As in PCA, both PCF and PAF, the first factor accounts for as much common variance as possible, then the second factor next most variance, and so on.

- An advantage of PCF method and PAF methods is that both methods can be used when the assumption of normality has been violated.
- The PCF method and PAF method are the same on the correlation matrix.

Maximum Likelihood Factoring (MLF)

In order to apply MLF method, data should be multi normal. The advantage of this method is that it provides a limited range of goodness-of-fit tests and does allow for the statistical hypothesis tests. The results of this method are invariant whether you use correlation or covariance matrix to extract factors.

3.5.5 Identification of Number of Factors

One of the most important decisions in FA is to decide the number of common factors (m) that are driving the values of the variables actually being measured. The common method is to start with a PCA and determine how many principal components would be required based on the size of eigenvalues. The common rule is to select the factors with an eigenvalue of ≥ 1. Another option is the scree plot. A scree plot shows downward curve as $\lambda_1 > \lambda_2 > \cdots > \lambda_p$. The where the slope of the curve is clearly leveling off (the "elbow") indicates the number of common factors for the FA. However, there is no guarantee that the number of common factors for the FA is the same as the number of principal components. Some subjective and objective criteria have been suggested (Peiris, 2018).

Subjective Criteria

(a) The ψ_i s $(i = 1,2, \ldots p)$ in the factor model should all be close to zero. That is $V(X_i)$ from the factor model is close one. In other words all the communalities should close to one. That is $\Sigma_{j=1}^{m} = \lambda_{ij}^2$ should closed to one for all i's (i=1,2,….p).

(b) Difference between the correlation among observed variables and those that are reproduced by the FA model should be close to zero. That is, the reproduced correlation matrix based on the factor model to be as close to the values in the original correlation matrix. (Peiris, 2018).

3.5.6 Rotating Factors

In general, when a set of factors is derived, they are not easy to interpret. In order to make the factors more meaningful and simple, factors are rotated using orthogonal transformation. In other words, rotation procedures try to make some factors loadings close to zero and other factor loadings to be large. Therefore, FA can be considered as, "simplification of loading matrix in PCA". The beauty of orthogonal rotation is that the rotation procedures keep the factors uncorrelated as the initial factors are also orthogonal. The popular orthogonal rotations in SPSS are: (i) Varimax, (ii) Quartimax and (iii) Equimax.

The factors derived using oblique rotation are not orthogonal to each other. Thus, the interpretation of the factor structure resulted via oblique rotation is more complex and generally not used very often. The most popular combination is PCA and Varimax rotation.

3.5.7 Factor Score Coefficients

Once each observed variable is represented by linear functions of common factors and unique factors, it is necessary to define factors also from original (selected) variables. In other words, unlike principal components scores, which are computed, the factor scores have to be estimated in FA. Multiple linear regression is one of the methods used to estimate factor score coefficients in SPSS. If $\hat{\mathrm{F}}$ be the estimated factor score for the i^{th} factor then,

$$\hat{\mathrm{F}} = \hat{\beta}_1 x_{i1} + \hat{\beta}_2 x_{i2} + \hat{\beta}_3 x_{i3} + \cdots + \hat{\beta}_p x_{ip} \quad (i = 1,2, \ldots m).$$

Thus $\beta_i' s$ are the coefficients of linear combinations to predict values of the selected factors and these coefficients are known as factor score coefficients. The factor score coefficients are functions of the original standardized variables. Thus factor score can depend on the type of rotation as well as type of extraction. In other words, the factor scores are not unique. As a result, some researchers hesitate to use the factor scores for interpretation.

3.6 Multiple Linear Regression

Multiple linear regression is the most common form of linear regression analysis. As a predictive analysis, the multiple linear regression is used to explain the relationship between one continuous dependent variable and two or more independent variables. The independent variables can be continuous or categorical, but in this case all independent variables are continuous. This multiple linear regression model with four explanatory variables is written as:

$$Y_i = \beta_0 + \beta_1 X_{1i} + \beta_2 X_{2i} + \beta_3 X_{3i} + \beta_4 X_{4i} + \varepsilon i$$

It is assumed that the errors of the fitted model$\varepsilon_i \sim iiD(0, \sigma^2)$. In general, the model should be significant based on F-statistics in ANOVA. That is the model should be able to capture significant amount of variability of the response variable. Furthermore, it is better if all parameters in the model are significantly different from zero.

After satisfied the above requirement the next step is test assumption of errors which is known as diagnostic tests. The following tests are carried out to validate the assumption of errors.

3.6.1 Test for Randomness

In regression analysis the randomness of the errors is tested using Durbin Watson (DW) statistic. That is, the autocorrelation at lag 1 of the error series is not significantly different from zero. DW statistic is given by the equation given below and it should close to 2 for randomness.

This formula as follows,

$$DW = \frac{\sum_{j=2}^{N} (e_j - e_{j-1})^2}{\sum_{j-1}^{N} e_j^2}$$

In other words, a value near 2 indicates non-autocorrelation, a value toward 0 indicates positive autocorrelation, and a value toward 4 indicates negative autocorrelation.

3.6.2 Test for Normality

The residuals are assumed to follow the normal probability distribution with zero mean and constant variance. This is tested using A-D test under the null hypothesis, Ho: errors are normally distributed. Also it can be tested can be tested by looking at the P-P plot for the errors. The closer the dots lie to diagonal line, the closer to normal the residuals are normally distributed normally.

3.6.3 Test of Homoscedasticity

At each level of the predictor variable(s), the variance of the residual terms should be constant. This just means that the residuals at each level of the predictor(s) should have the same variance is homoscedasticity" (Frone, 1992). Residual scatter plots provide a visual examination of the assumption. Scatter Plot show random array of the dots. In order to the current study, these observations are normally distributed without any pattern, it follows homoscedasticity.

CHAPTER 4

EXPLANATORY DATA ANALYSIS & DISCUSSION

4.1 Introduction to the Chapter

This chapter describes the properties of the demographical variables acquired and results of the multiple regression model on WFC.

4.2 Demographic Variables

The percentage distributions of the demographic variables are shown in Table 4.1.

Table 4. 1 Demographic Composition of the Sample

Demographic Variables		Frequency	Percentage %
Age Composition	Below 20 Years	27	10
	21-30 Years	79	30
	31-40 Years	74	28
	41-50 Years	57	22
	Above 50 Years	28	11
Civil Status	Married	139	52
	Unmarried	126	48
Tenure	Below 5 years	198	75
	Above 5 years	67	25
Education Level	Up to Grade 8	24	9
	Up to O/L	104	39
	Pass O/L	80	30
	Up to A/L	37	14
	Pass A/L	20	8

Results in Table 4.1 shows that sample comprised with different age categories and the highest percentage of the age category is 21-30 years. According to the age composition, there is a special fact. Middle age respondents' quantity are higher than the others. Sample consists with very few respondents from age below 20 years and above 50 years. The main reason for such a situation could be due to the fact that most of the time younger generation are focus to this field. The majority of the respondents

(52%) were married. This mainly due to the fat that the female machine operators got married in their young ages.

The percentage of respondents whose duration of the tenure was less than five years is 75%. It is due to the fact that majority of the machine operator do not want to remain in the company for more than five years. This high percentage of turnover is the huge problem in the apparel industry as explained above in details. Only less than 25% machine operators generally retain with their job in the company for a long time period.

More than half of the respondents (30%) had reached a reasonable level of education by passing the G.C.E (O/L). However, 9% of the machine operators has studied only up to grade 8. While 8% has passed G C E (A/L) as well.

4.3 Descriptive Statistics

In order to carry out a multiple regression analysis for WFC with four independent variables (WO, WFB, FLX and IPC), multiple correspondence analysis (MCA) was carried out to convert the Likert scale data into continuous data using Minitab Software (Minitab, 17.1). MCA computes simple composite index using linear transformation by taking some weights based on the responses observed for a given variable and thus this was carried out for all five main variables. Thereafter that those values were transformed to percentages by multiplying 100 (Organization for Economic Co-operation & Development, 2008). The basic statistics for percentage score for the five main factors shown in Table 4.2.

Table 4. 2 Descriptive statistics of the five main factors

Variable	Mean	SD	Min.	Max.	No of variables
Work-Family Conflict (WFC)	75.26	10.65	49.13	98.86	18
Work Overload (WO)	79.82	9.93	52.23	99.46	8
Work Family Benefit (WFB)	57.41	19.83	15.12	99.49	16
Flexibility (FLX)	45.68	9.99	23.26	70.00	4
Interpersonal Conflict (IPC)	84.38	8.40	51.73	99.86	8

The mean of work-family conflict, work overload, work-family benefit utilization, flexibility and interpersonal conflict are 75.26, is 79.82, is 57.41, 45.68 and 84.38 respectively.

4.4. Association between WFC and other four variables

The correlation coefficient between WFC and other four variables are shown in Table 4.3.

Table 4. 3 Correlation coefficients of WFC with other four variables

		WO Mean	WFB Mean	FLX Mean	IPC Mean
WFC	Pearson Correlation	0.632	-0.143	-0.024	0.200
	Sig. (1-tailed)	0.000	0.050	0.702	0.001

According to the below table (Table 4.3) correlation coefficients between WFC and WO, WFC and WFB and WFC and IPC are significantly greater than from zero at 5% level of significant level as the corresponding p-value are less than critical p value of 0.05. In contrast the correlation coefficient between WFC and WFB is significantly less than zero ($r = -0.143$, $p=0.05$). Based on the above results it can be confirmed with 95% confident that WFC is significantly influenced (positively) by WO and IPC when each one is considered separately and of those two impact from WO on WFC is much higher than that of IPC. In contrast, there is significant negative impact from WFB on WFC, but the impact is less as the correlation coefficient is -0.143, though it

is statistically significant. The above correlation values shows the strength of the linear relationship between the response variable, WFC and each other explanatory variables separately. Thus in order to find joint relationship among variables, multiple linear regression analysis was carried out.

4.5 Multiple Regression Modal Adequacy

A multiple linear regression model was fitted by taking all four variables together irrespective of the significance of each variables. The results of ANOVA of the fitted linear model is shown in Table 4.4.

Table 4. 4 ANOVA of the fitted model

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	13270.402	4	3317.600	51.625	0.000[b]
Residual	16708.559	260	64.264		
Total	29978.961	264			

Dependent Variable: WFC and Predictors: (Constant), IPC, WO, FLX, WFB

The results indicated that the above model was significant as the corresponding F value is significant (p=0.000). Thus it can be concluded that there is overall significant impact from the four variables on WFC. However, the fitted model is able to explain about 43.4% of total observed variability of WFC. This implies that there are some more external variables which may influence WFC. The significant of each variable was also tested (Table 4.5).

Table 4. 5 Results of testing coefficients of the model for significance

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	4.433	2.155		2.057	0.036		
	WO	0.673	0.050	0.627	13.387	0.000	0.977	1.023
	WFB	-0.023	0.025	-0.043	-0.915	0.361	0.968	1.033
	FLX	-0.053	0.050	-0.050	-1.064	0.288	0.990	1.010
	IPC	0.247	0.059	0.195	4.207	0.000	0.998	1.002

According to results in Table 4.5, the corresponding p values of WFB ($p = 0.361$) and p value of FLX ($p = 0.288$) are greater than 0.05 and therefore, it can be concluded that the true parameters of those two variables are not significantly different from zero at 5% significance level. It reveals that work family benefit utilization and flexibility are not significantly influenced on WFC. In fact, a multiple linear regression model was again fitted with only WO and IPC and then it was found that the F-value of the overall ANOVA table as well as all the three parameters (including the constant term) were significant at least 5% significance level (Table 4.6).

Table 4. 6 Summary of the SPSS output of the final model

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	13154.277	2	6577.139	102.422	.000[b]
Residual	16824.684	262	64.216		
Total	29978.961	264			

Dependent Variable: WFC and Predictors: (Constant) WO, IPC

The results in Table 4.6 revealed that work overload and interpersonal conflict with coworkers and supervisors had a positively impact on work family conflict as the corresponding parameters are significantly greater than zero. Thus, it can be concluded with 95% confident that WO and IPC are the two significantly influential variables on WFC.

4.5.1 Multicollinearity among two Variables

Tolerance and Variance Inflating Factor (VIF) are measures of the amount by which the variance of the standardized regression coefficient is inflated by multicollinearity. Generally, TOL<0.1 or equivalently VIF>10 is regarded as a sign of multicollinearity which may influence stability of the parameters of the model. According to the values of VIF (1.002, 1.320) and Tolerance (0.997, 0.908) obtained for the final model with two variables it can be concluded that impact of multicollinearity for the model with two variables is negligible. It was also found that errors of the final followed white noise.

4.6 Final Regression Model

Taking the above interpretation in to consideration the fitted model with tow variables can be written as: WFC = 0.026 + 0.678WO + 0.251IPC

According to regression equation when there is no effect from work overload, and when the interpersonal conflict with co-workers and supervisors increased by one unit there is an average of 0.026 of work-family conflict in the company. Moreover, there can be 0.678 of work-family conflict if only the work overload is increased by one unit when other variables did not changed. Similarly, by increasing only the interpersonal conflict with co-workers and supervisors by one unit and maintained others as fixed it can be expected that work-family conflict would increase by 0.251 units. However, it should be pointed that in some countries it has been found that both FLX and WFB are also significant factors to reduce the WFC (Berscheid & Reis, 2000).

4.7 Summary of the Chapter 4

The work overload (WO) and interpersonal conflict with co-workers and supervisors (IPC) had a positively and significantly impact on work-family conflict. Unlike other countries, FLX and WFB were not identified as significant factor that had an impact on the WFC in the Hirdarmani Mercury Apparel Industry. Thus it can be concluded that these two variables were most influential independent variable for the work-family conflict among machine operators in HMAPL.

CHAPTER 5

IDENTIFICATION OF FACTORS RELATED TO WFC AND THE COMBINATION OF WO AND IPC

5.1 Variables of WFC

The thirteen independent dimensions which are major forms of work-family conflict considered in this study are briefly described in Table 5.1.

Table 5. 1 Introduction of Variables Related to WFC

Attribute	Variable Name	Abbreviation of Variable
My work keeps me from my family activities more than I would like	Family Activity	FA
The time I must devote to my job keeps me from participating equally in household responsibilities and activities.	Household Responsibilities and Activities	HRA
I have to miss family activities due to the amount of time I must spend on work responsibilities.	Work Responsibilities	WR
The time I spend on family responsibilities often interfere with my work responsibilities.	Family Responsibilities	FR
The time I spend with my family often causes me not to spend time in activities at work that could be helpful to my career.	Helpful to My Career	HMC
I have to miss work activities due to the amount of time I must spend on family responsibilities.	Time Spend on Family Responsibilities.	TSFR
Because I am often stressed from family responsibilities, I have a hard time concentrating on my work	Stress from Family Responsibilities	SFR
When I get home from work I am often too frazzled to participate in family activities/ responsibilities.	Frazzle to Family Activities	FFA

Table 5.1 Introduction of Variables Related to WFC (Continued)

Attribute	Variable Name	Abbreviation of Variable
I am often so emotionally drained when I get home from work that it prevents me from contributing to my family.	Emotionally Drained to Family	EDF
Due to all the pressures at work, sometimes when I come home I am too stressed to do the things I enjoy.	Pressures At Work	PAW
Due to stress at home, I am often preoccupied with family matters at work	Stress At Home	SAH
Behavior that is effective and necessary for me at work would be counterproductive at home	Would be Counterproductive At Home	WCAH
Behavior that is effective and necessary for me at work do not help me to be a better parent and spouse	Help me to be a Better Parent and Spouse	HBPS

5.2 Validation of Data for FA

5.2.1 Correlation among Variables

Results of the correlation matrix Table 5.2 indicate that the correlation coefficients in most of the variables are significantly greater than zero at 5% significant level as all p-values are less than 0.05. The significance of Bartlett's test (p=0.000) shown in Table 5.3 conformed that the true correlation matrix is significantly different from the identified matrix. Thus it can be concluded the observed correlation matrix is suitable for FA.

Table 5. 2 Observed Correlation Matrix with p values for Significance

		FA	HRA	WR	FR	HMC	TSFR	SFR	FFA	EDF	PAW	SAH	WCAH	HBP5
FA	Pearson Correlation	1	-.481**	-.207**	-.403**	.307**	-.384**	.200**	.110*	.296**	-.064	-.188**	.061	.044
	Sig. (1-tailed)		.000	.000	.000	.000	.000	.001	.037	.000	.885	.003	.885	.238
	N	285	285	285	285	285	285	285	285	285	285	285	285	285
HRA	Pearson Correlation	-.481**	1	.473**	.808**	-.453**	.868**	.047	.288**	.005	.315**	.010	.099	.143**
	Sig. (1-tailed)	.000		.000	.000	.000	.000	.222	.000	.468	.000	.438	.055	.010
	N	285	285	285	285	285	285	285	285	285	285	285	285	285
WR	Pearson Correlation	-.207**	.473**	1	.821**	-.488**	.539**	-.072	-.058	.042	.302**	-.097	-.127*	-.079
	Sig. (1-tailed)	.000	.000		.000	.000	.000	.122	.174	.250	.000	.057	.019	.101
	N	285	285	285	285	285	285	285	285	285	285	285	285	285
FR	Pearson Correlation	-.403**	.808**	.821**	1	-.850**	.803**	-.058	.078	.024	.334**	-.020	-.030	.007
	Sig. (1-tailed)	.000	.000	.000		.000	.000	.172	.103	.348	.000	.371	.313	.458
	N	285	285	285	285	285	285	285	285	285	285	285	285	285
HMC	Pearson Correlation	.307**	-.453**	-.488**	-.850**	1	-.527**	.208**	.376**	.376**	-.116*	.099	.151**	.124*
	Sig. (1-tailed)	.000	.000	.000	.000		.000	.000	.000	.000	.026	.053	.007	.022
	N	285	285	285	285	285	285	285	285	285	285	285	285	285
TSFR	Pearson Correlation	-.384**	.868**	.539**	.803**	-.527**	1	-.067	.070	.062	.268**	-.048	-.065	-.045
	Sig. (1-tailed)	.000	.000	.000	.000	.000		.130	.126	.157	.000	.228	.147	.235
	N	285	285	285	285	285	285	285	285	285	285	285	285	285
SFR	Pearson Correlation	.200**	.047	-.072	-.058	.208**	-.067	1	.554**	.440**	.317**	-.193**	.151**	.183**
	Sig. (1-tailed)	.001	.222	.122	.172	.000	.130		.000	.000	.000	.001	.007	.004
	N	285	285	285	285	285	285	285	285	285	285	285	285	285
FFA	Pearson Correlation	.110*	.288**	-.058	.078	.376**	.070	.554**	1	.636**	.369**	-.290**	.326**	.334**
	Sig. (1-tailed)	.037	.000	.174	.103	.000	.126	.000		.000	.000	.000	.000	.000
	N	285	285	285	285	285	285	285	285	285	285	285	285	285
EDF	Pearson Correlation	.296**	.005	.042	.024	.376**	.062	.440**	.636**	1	.371**	-.260**	.140*	.129*
	Sig. (1-tailed)	.000	.468	.250	.348	.000	.157	.000	.000		.000	.000	.011	.016
	N	285	285	285	285	285	285	285	285	285	285	285	285	285
PAW	Pearson Correlation	-.064	.315**	.302**	.334**	-.116*	.268**	.317**	.369**	.371**	1	-.221**	.053	.026
	Sig. (1-tailed)	.285	.000	.000	.000	.026	.000	.000	.000	.000		.000	.193	.328
	N	285	285	285	285	285	285	285	285	285	285	285	285	285
SAH	Pearson Correlation	-.188**	.010	-.097	-.020	.099	-.048	-.193**	-.290**	-.260**	-.221**	1	.014	.033
	Sig. (1-tailed)	.003	.438	.057	.371	.053	.228	.001	.000	.000	.000		.411	.296
	N	285	285	285	285	285	285	285	285	285	285	285	285	285
WCAH	Pearson Correlation	.061	.099	-.127*	-.030	.151**	-.065	.151**	.326**	.140*	.053	.014	1	.596**
	Sig. (1-tailed)	.295	.055	.019	.313	.007	.147	.007	.000	.011	.193	.411		.000
	N	285	285	285	285	285	285	285	285	285	285	285	285	285
HBP5	Pearson Correlation	.044	.143**	-.079	.007	.124*	-.045	.183**	.334**	.129*	.026	.033	.596**	1
	Sig. (1-tailed)	.238	.010	.101	.458	.022	.235	.004	.000	.016	.328	.296	.000	
	N	285	285	285	285	285	285	285	285	285	285	285	285	285

**. Correlation is significant at the 0.01 level (1-tailed).

*. Correlation is significant at the 0.05 level (1-tailed).

Table 5. 3 Results of KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.761
Bartlett's Test of Sphericity	Approx. Chi-Square	1704.214
	Df	78
	Sig.	0.000

5.2.2 KMO Statistic

According to Table 5.3 the observed KMO statistics for the data is 0.761 which is greater than critical value of 0.6 conforming that data satisfied sampling adequacy for FA. Initial Communalities under PCA Extraction Method indicate in Table 4:5.

5.2.3 Reliability

Cronbach's alpha coefficient for the 13 variables was found as 0.709 and thus it can be confirmed that there is moderate internal consistency in data.

5.3 Results of FA

5.3.1 Screening Variables

The scree plot of obtained under FA for the 13 variables is shown in Figure 5.1.

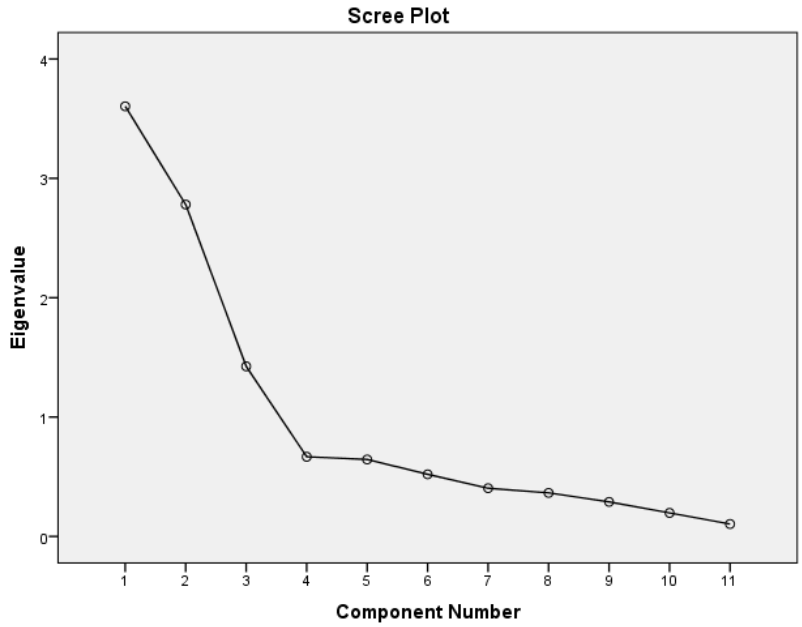

Figure 5. 1 Scree Plot of the initial 13 variables

The Fig. 5.1 clearly indicated that the eigen value is greater than one only for three factors and therefore according Kaiser's rule three factors model was considered as a good model to replace the 11 factors. The FA was initially carried out using PCA method and accordingly the initial communities for all variables are one as shown in Table 5.4.

Table 5. 4 Initial and Final Communalities of the 3-factor model under PCA Extraction Method

Variables	Initial Communalities	Final Communalities
FA	1.000	.422
HRA	1.000	**.800**
WR	1.000	**.559**
FR	1.000	**.879**
HMC	1.000	**.641**
TSFR	1.000	**.736**
SFR	1.000	**.518**
FFA	1.000	**.775**
EDF	1.000	**.698**
PAW	1.000	**.509**
SAH	1.000	.364
WCAH	1.000	**.697**
HBPS	1.000	**.719**

The final communalities in Table 5.4 clearly indicate that the communalities are very high and closer for convergence to one for all variables except FA & SAH. The FA was carried out with the remaining 11. All three factors obtained from PAF method are also variant of the type of rotation. Therefore FA & SAH are removed from the data set.

5.3.2 Identification of Factors

After the removing the two variables, FA was carried out for the 11 variables using the correlation matrix and the results of the eigen analysis is shown in Table 5.5. As per the Table 5.5 as the eigen values are greater than one criterion, it can be concluded that only the first three components can be used as common factors and those three common factors accounted for 71% of the variance across eleven observed variables. This was further justified by scree plot. Furthermore, the final communalities obtained under 3-factor model for the 11 variables shown in Table 5.6 also confirmed that almost all the final communalities are close to one.

Table 5. 5 Results of the Eigen Analysis for 11 Variables of WFC

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	**3.604**	32.763	32.763	**3.604**	32.763	32.763
2	**2.780**	25.277	58.040	**2.780**	25.277	58.040
3	**1.425**	12.952	70.992	**1.425**	12.952	70.992
4	.667	6.068	77.059			
5	.644	5.859	82.918			
6	.520	4.729	87.647			
7	.404	3.670	91.317			
8	.365	3.316	94.634			
9	.289	2.629	97.263			
10	.197	1.791	99.054			
11	.104	.946	100.000			

Table 5. 6 Initial & Final Communalities for 3-Factor Model under PCF Extraction Method after Removing Two Variables

Variables	Initial Communalities	Extraction Communalities
HRA	1.000	**.768**
WR	1.000	**.575**
FR	1.000	**.892**
HMC	1.000	**.704**
TSFR	1.000	**.746**
SFR	1.000	**.554**
FFA	1.000	**.786**
EDF	1.000	**.709**
PAW	1.000	**.537**
WCAH	1.000	**.761**
HBPS	1.000	**.776**

5.3.3 Rotation of Factors

In order to obtain simple and meaningful factors the initial three factors extracted were rotated via Varimax rotation. In fact, it is compulsory to rotate factors in FA. The results of factor loadings of the 3-factor model after rotation is shown in Table 5.7.

Table 5. 7 Factor Loadings of the 3-Factor Model (PCF and Varimax)

Initial Variable	Factor 1	Factor 2	Factor 3
HRA	**0.837**	0.134	0.221
WR	**0.738**	0.036	-0.171
FR	**0.943**	0.041	0.026
HMC	**-0.739**	0.383	0.108
TSFR	**0.861**	0.064	-0.035
SFR	-0.090	**0.733**	0.093
FFA	0.036	**0.815**	0.347
EDF	-0.050	**0.84**	0.021
PAW	0.396	**0.611**	-0.088
WCAH	-0.047	0.112	**0.864**
HBPS	-0.004	0.102	**0.875**

According to the results in Table 5.7 the initial variable HRA, WR, FR and HMC have significantly higher loadings (>0.7) on the first common factor (F1) compared with

corresponding loadings in other variables. The variables of SFR, FFA, EDF and PAW also have loading higher than 0.6 on the common factor 2 and those loadings are significantly higher than the corresponding loadings of the remaining variable on the second common factor. Results in Table 5.6 very clearly reveal that the loadings of WACH and HBPS (> 0.8) on the common factor 3 is significantly higher than the corresponding loadings of the remaining nine variables. Thus, it can be concluded with confident that the three common factors can be formed with the linear function of {HRA, WR, FR, HMC and TSFR}, {SFR, FFA, EDF and PAW} AND {WCAH & HBPS} respectively.

In order to check whether the factors identified are invariant with the type of orthogonal rotation under the same factor extraction method, factor loadings were obtained by rotating the initial factors by Quartimax and Equamax. The same trend as for Varimax rotation can be seen in the factor loading in PCA Extraction & Quartimax Rotation and PCA Extraction & Equamax Rotation are shown in Table 5.8 and 5.9 respectively. The variables having high loadings within a factor are highlighted in Table 5.8 and Table 5.9.

Table 5. 8 Factor Loadings of the Selected 3-Factor Model (PCF & Equamax)

Initial Variable	Factor 1	Factor 2	Factor 3
HRA	**0.838**	0.134	0.218
WR	**0.737**	0.040	-0.175
FR	**0.943**	0.044	0.021
HMC	**-0.739**	0.379	0.118
TSFR	**0.860**	0.067	-0.039
SFR	-0.092	**0.732**	0.103
FFA	0.035	**0.811**	0.357
EDF	-0.053	**0.840**	0.032
PAW	0.393	**0.613**	-0.083
WCAH	-0.042	0.101	**0.866**
HBPS	0.001	0.091	**0.876**

Table 5. 9 Factor Loadings of the Selected 3-Factor Model (PCF & Quartimax)

Initial Variable	Factor 1	Factor 2	Factor 3
HRA	**0.836**	0.135	0.227
WR	**0.740**	0.027	-0.164
FR	**0.943**	0.037	0.035
HMC	**-0.738**	0.389	0.091
TSFR	**0.861**	0.059	-0.028
SFR	-0.087	**0.736**	0.074
FFA	0.037	**0.823**	0.327
EDF	-0.046	**0.841**	0.000
PAW	0.400	**0.606**	-0.099
WCAH	-0.055	0.134	**0.860**
HBPS	-0.012	0.125	**0.872**

Based on the magnitude of the loadings in both Tables, it can be seen that the variables HRA, WR, FR, HMC and TSFR have higher (> 0.7) on the first common factor, variables SFR, FFA, EDF and PAW have higher loadings (> 0.6) on the second common factor and WCAH and HBPS have higher loadings (> 0.8) on the third common factor (F3). Thus, it can be concluded that factors extracted by PCF are invariant under the three common orthogonal rotations.

5.3.4 Factor Extraction using PAF

In order to see the identified variables to the three common factors remain same when the factors are extracted using PAF, the three factors were extracted from PAF and rotated using the same three rotation methods as described in Section 5.3.3. The corresponding factor loadings are shown in Table 5.10, Table 5.11 and Table 5.12.

Table 5. 10 Factor Loadings of the Selected 3-Factor Model (PAF & Varimax)

Initial Variable	Factor 1	Factor 2	Factor 3
HRA	**0.805**	0.135	0.196
WR	**0.654**	0.020	-0.142
FR	**0.973**	0.040	0.018
HMC	**-0.684**	0.363	0.106
TSFR	**0.821**	0.065	-0.049
SFR	-0.068	**0.595**	0.113
FFA	0.043	**0.826**	0.331
EDF	-0.038	**0.778**	0.027
PAW	0.348	**0.479**	-0.031
WCAH	-0.048	0.131	**0.729**
HBPS	-0.009	0.118	**0.770**

Table 5. 11 Factor Loadings of the Selected 3-Factor Model (PAF & Equamax)

Initial Variable	Factor 1	Factor 2	Factor 3
HRA	**0.805**	0.135	0.193
WR	**0.653**	0.025	-0.146
FR	**0.973**	0.044	0.011
HMC	**-0.685**	0.359	0.116
TSFR	**0.820**	0.069	-0.054
SFR	-0.070	**0.593**	0.123
FFA	0.042	**0.821**	0.344
EDF	-0.040	**0.777**	0.040
PAW	0.346	**0.480**	-0.025
WCAH	-0.044	0.118	**0.731**
HBPS	-0.004	0.105	**0.772**

Table 5. 12 Factor Loadings of the Selected 3-Factor Model (PAF & Quartimax)

Initial Variable	Factor 1	Factor 2	Factor 3
HRA	**0.803**	0.137	0.202
WR	**0.656**	0.011	-0.134
FR	**0.973**	0.035	0.028
HMC	**-0.683**	0.371	0.084
TSFR	**0.822**	0.058	-0.041
SFR	-0.066	**0.599**	0.091
FFA	0.045	**0.837**	0.302
EDF	-0.033	**0.779**	-0.001
PAW	0.352	**0.475**	-0.043
WCAH	-0.056	0.156	**0.723**
HBPS	-0.017	0.144	**0.765**

Comparison of the loadings in Tables 5.10 – 5.12, it can be concluded that the same variables were identified by all three rotations under the extraction method of PCF. In other words, same variables have significantly high loadings within the factor 1, factor 2 and factor 3. In fact, the loadings of all the selected variables for the three factors under three rotations are higher than 0.6 while the loadings of the reaming variables in each factor has loadings of less than 0.3. Therefore, the summary of the identified variables for the three common factors among variables associated to work-family conflict is shown in Table 5.13.

Table 5. 13 List of Variables Selected for the Three Factors under 2 different Extraction Methods and Three Different Orthogonal Rotation Methods

Extraction Method	Rotation Method	Factor 1	Factor 2	Factor 3
PCA Component Analysis	Varimax	HRA, WR, FR, HMC,TSFR	SFR, FFA, EDF, PAW	WCAH, HBPS
	Quartimax	HRA, WR, FR, HMC,TSFR	SFR, FFA, EDF, PAW	WCAH, HBPS
	Equamax	HRA, WR, FR, HMC,TSFR	SFR, FFA, EDF, PAW	WCAH, HBPS
Principal Axis Factoring	Varimax	HRA, WR, FR, HMC,TSFR	SFR, FFA, EDF, PAW	WCAH, HBPS
	Quartimax	HRA, WR, FR, HMC,TSFR	SFR, FFA, EDF, PAW	WCAH, HBPS
	Equamax	HRA, WR, FR, HMC,TSFR	SFR, FFA, EDF, PAW	WCAH, HBPS

5.3.5 Defining Factors

It was shown that the variables identified for the three common factors did not change based on the type of factor extraction and type of rotation. The three factors can be performed using {HRA, WR, FR, HMC, TSFR}, {SFR, FFA, EDF, PAW} and {WCAH, HBPS}. However, as Varimax is the most popular rotation in Factor Analysis (Peiris, 2018), factor score coefficients for the above three factor model were obtained for PAF method with Varimax rotation (Table 5.14).

Table 5. 14 Factor Score Coefficients of the 3 – Factor Model (PAF and Varimax)

Initial Variable	Factor 1	Factor 2	Factor 3
HRA	**0.071**	-0.063	0.120
WR	**0.070**	0.048	-0.068
FR	**0.767**	0.022	0.034
HMC	**-0.153**	0.110	0.010
TSFR	**0.104**	0.027	-0.053
SFR	0.010	**0.128**	-0.030
FFA	0.010	**0.550**	0.119
EDF	-0.072	**0.298**	-0.130
PAW	0.042	**0.133**	-0.064
WCAH	-0.005	-0.065	**0.401**
HBPS	0.003	-0.091	**0.488**

Based on the coefficients in Table 5.14 the three factors can be written as follows.

$F_1 = 0.071\text{HRA} + 0.070\text{WR} + 0.767\text{FR} + 0.153\text{HMC} + 0.104\text{TSFR}$

$F_2 = 0.128\text{FR} + 0.550\text{FFR} + 0.298\text{EDF} + 0.133\text{PAW}$

$F_3 = 0.401\text{WCAH} + 0.488\text{HBPS}$

The three factors described above can be named as, (1) Time Based Conflict, (2) Stain Based Conflict and (3) Behavior Based Conflict respectively (Table 5.15).

Table 5. 15 Names of the three Factors, Name with Variables

Factor Name	Variable Name	Variable
F1 - Time Based Conflict	Household Responsibilities and Activities	HRA
	Work Responsibilities	WR
	Family Responsibilities	FR
	Helpful to My Career	HMC
	Time Spend on Family Responsibilities	TSFR
F2 - Stain Based Conflict	Stress from Family Responsibilities	SFR
	Frazzle to Family Activities	FFA
	Emotional Drained to Family	EDF
	Pressures At Work	PAW
F3 - Behavior Based Conflict	Would be Counterproductive At Home	WCAH
	Help me to be a Better Parent and Spouse	HBPS

Therefore, it can be concluded that the three factors related to WFC are time based conflict, stain based conflict and behavior based conflict.

5.4 Common Factors within WO and IPC

The variables that were affected to the three common factors within work-family conflict (WFC) are described in Table 5.15. In Chapter 4, it was also found that WFC is significantly influenced positively by WO and IPC. Therefore, in order to identify the common factors within WO and IOC, the factor analysis was carried out for the 18 variables within WO and IPC as described in Table 5.16.

Table 5. 16 Identified Variables for the FA within WO and IPC

Attributes	Variable Name	Notation
Primary priority in a person's life	Primary Priority	PP
Long hour inside the office	Long Hour	LH
Family mater separate from work	Family Mater	FM
Expressing involvement and interest in nonworking matter	Expressing Involvement	EI
Highly committed to family life	Highly Committed	HC
Keep personal problems at home	Personal Problems at Home	PPH
Attend to personal matters	Personal Matters	PM
Work family benefits have helped my children	Work Family Benefits to Children	WFBC
Work family benefits helped me to face bad times	Work Family Benefits to Bad	WFBB
Taking time off for sick children	Taking Time for Sick Children	TTSC
Tasks are too much for me	Tasks too Much	TTM
Too many duties that I have to do	Too Many Duties	TMD
Not enough time to fulfill my daily assignments	Not Enough Time	NET
Overload through different duties	Overload Through Different Duties	ODD
Flexibility of scheduling work	Flexibility of Scheduling Work	FSW
Personal and family life balance	Personal and Family Life Balance	PFLB
Arguments with your supervisor	Arguments with Your Supervisor	AWS
Supervisor rude at work	Supervisor Rude at Work	SRW
Supervisor yell at you at work	Supervisor Yell at Work	SYW

5.4.1 Conditions to Satisfy for FA

The correlation matrix of the observed variables described above is shown in Table 5.17.

Table 5. 17 Correlation Matrix among 18 Variables

		PP	LH	PM	ES	HC	PPH	C	VPEB	IIEC	IIIM	IMD	NEII	OOO	PSW	PPLD	AWE	SRW	STW
PP	Pearson Correlation	1	.483**	.420**	.248**	.258**	-.203**	.038	-.154**	-.153**	-.030	.056	-.025	-.040	-.006	.018	-.031	.012	-.010
	Sig. (2-tailed)		.000	.000	.000	.000	.000	.261	.014	.008	.305	.168	.340	.251	.462	.383	.298	.423	.433
	N	285	285	285	285	285	285	285	285	285	285	285	285	285	285	285	285	285	285
LH	Pearson Correlation	.483**	1	.344**	.334**	.300**	-.128*	-.245**	-.185**	.011	-.060	.000	-.033	-.030	.033	.008	.028	.021	.023
	Sig. (2-tailed)	.000		.000	.000	.000	.016	.000	.031	.105	.091	.011	.288	.283	.353	.451	.320	.362	.353
	N	285	285	285	285	285	285	285	285	285	285	285	285	285	285	285	285	285	285
PM	Pearson Correlation	.420**	.344**	1	.458**	.483**	-.228**	-.033	.018	.060	-.031	.016	.006	-.011	-.012	-.008	.010	.101*	.094
	Sig. (2-tailed)	.000	.000		.000	.000	.000	.294	.368	.158	.278	.104	.464	.384	.421	.451	.362	.042	.064
	N	285	285	285	285	285	285	285	285	285	285	285	285	285	285	285	285	285	285
ES	Pearson Correlation	.248**	.334**	.458**	1	.343**	.064	-.214**	.281**	.301**	-.025	-.035	.041	.031	.024	.054	.002	.084	.014
	Sig. (2-tailed)	.000	.000	.000		.000	.140	.000	.000	.000	.341	.283	.254	.308	.341	.180	.480	.082	.410
	N	285	285	285	285	285	285	285	285	285	285	285	285	285	285	285	285	285	285
HC	Pearson Correlation	.258**	.300**	.483**	.343**	1	.001	-.203**	-.181**	.180**	-.053	.130*	-.011	-.010	.042	.002	.056	.012	-.014
	Sig. (2-tailed)	.000	.000	.000	.000		.494	.000	.001	.001	.181	.012	.388	.318	.348	.490	.173	.421	.411
	N	285	285	285	285	285	285	285	285	285	285	285	285	285	285	285	285	285	285
PPH	Pearson Correlation	-.203**	-.128*	-.228**	.064	.001	1	-.230**	.208**	.308**	.000	-.023	.010	.060	.009	.038	.091	.000	-.010
	Sig. (2-tailed)	.000	.016	.000	.140	.494		.000	.000	.000	.494	.350	.319	.311	.443	.268	.051	.492	.101
	N	285	285	285	285	285	285	285	285	285	285	285	285	285	285	285	285	285	285
VPEB C	Pearson Correlation	.038	-.245**	-.033	-.214**	-.203**	-.230**	1	-.304**	-.858**	.010	-.040	-.018	-.040	.030	.083	-.054	.023	.015
	Sig. (2-tailed)	.261	.000	.294	.000	.000	.000		.000	.000	.438	.438	.388	.251	.313	.080	.362	.352	.403
	N	285	285	285	285	285	285	285	285	285	285	285	285	285	285	285	285	285	285
VPEB B	Pearson Correlation	-.154**	-.185**	.018	.281**	.181**	.208**	-.304**	1	.852**	-.020	.034	.001	.012	-.030	-.035	.025	.062*	.011
	Sig. (2-tailed)	.014	.031	.368	.000	.001	.000	.000		.000	.373	.283	.455	.421	.312	.288	.182	.152	.425
	N	285	285	285	285	285	285	285	285	285	285	285	285	285	285	285	285	285	285
IIEC	Pearson Correlation	-.153**	.011	.060	.301**	.180**	.308**	-.858**	.852**	1	.025	-.004	.051	.050	-.064	-.015	.011	-.008	.021
	Sig. (2-tailed)	.008	.105	.158	.000	.001	.000	.000	.000		.342	.472	.111	.188	.141	.111	.392	.484	.369
	N	285	285	285	285	285	285	285	285	285	285	285	285	285	285	285	285	285	285
IIIM	Pearson Correlation	-.030	-.060	-.031	-.025	-.053	.000	.010	-.020	.025	1	-.334**	.401**	.340**	-.083	-.180**	-.010	-.040	.042
	Sig. (2-tailed)	.305	.091	.278	.341	.181	.494	.438	.373	.342		.000	.000	.000	.080	.031	.380	.250	.235
	N	285	285	285	285	285	285	285	285	285	285	285	285	285	285	285	285	285	285
IMD	Pearson Correlation	.056	.000	.016	-.035	.130*	-.023	-.010	.034	-.004	-.334**	1	-.480**	-.180**	.000	.012	.048	-.048	-.035
	Sig. (2-tailed)	.168	.011	.104	.283	.012	.350	.438	.283	.472	.000		.000	.002	.498	.420	.210	.220	.281
	N	285	285	285	285	285	285	285	285	285	285	285	285	285	285	285	285	285	285
NEII	Pearson Correlation	-.025	-.033	.006	.041	-.011	.010	-.018	.001	.051	.401**	-.480**	1	-.188**	.022	.003	-.027	-.018	-.010
	Sig. (2-tailed)	.340	.288	.464	.254	.388	.319	.388	.455	.111	.000	.000		.001	.356	.484	.385	.382	.091
	N	285	285	285	285	285	285	285	285	285	285	285	285	285	285	285	285	285	285
OOO	Pearson Correlation	-.040	-.030	-.011	.031	-.010	.060	-.040	.012	.050	.340**	-.180**	-.188**	1	-.111*	-.134**	.010	.050	-.030
	Sig. (2-tailed)	.251	.283	.384	.308	.319	.311	.251	.421	.188	.000	.002	.001		.030	.022	.438	.191	.282
	N	285	285	285	285	285	285	285	285	285	285	285	285	285	285	285	285	285	285
PSW	Pearson Correlation	-.006	.023	-.012	.024	.042	.009	.030	-.030	-.064	-.083	.000	.022	-.111*	1	.521**	.017	.016	-.041
	Sig. (2-tailed)	.462	.353	.421	.341	.248	.443	.313	.312	.141	.080	.498	.356	.030		.000	.385	.388	.322
	N	285	285	285	285	285	285	285	285	285	285	285	285	285	285	285	285	285	285
PPLD	Pearson Correlation	.018	.008	-.008	.054	.002	.038	.083	-.035	-.015	-.180**	.012	.003	-.134**	.521**	1	.038	.105*	-.018
	Sig. (2-tailed)	.383	.451	.451	.180	.490	.268	.080	.288	.111	.031	.420	.484	.022	.000		.270	.044	.400
	N	285	285	285	285	285	285	285	285	285	285	285	285	285	285	285	285	285	285
AWE	Pearson Correlation	-.031	.028	.018	.002	.056	.001	-.034	.025	.011	-.010	.048	-.021	.010	.017	.038	1	.810**	.426**
	Sig. (2-tailed)	.298	.320	.382	.480	.173	.051	.282	.182	.392	.380	.210	.365	.438	.385	.270		.000	.000
	N	285	285	285	285	285	285	285	285	285	285	285	285	285	285	285	285	285	285
SRW	Pearson Correlation	.012	.021	.101*	.084	.012	.000	.023	.062	-.008	-.040	-.048	-.018	.050	.016	.105*	.810**	1	.833**
	Sig. (2-tailed)	.423	.361	.042	.081	.421	.491	.351	.151	.464	.250	.210	.382	.191	.388	.044	.000		.000
	N	285	285	285	285	285	285	285	285	285	285	285	285	285	285	285	285	285	285
STW	Pearson Correlation	-.010	.023	.094	.014	-.014	-.010	.015	.011	.021	.042	-.035	-.010	.030	-.041	-.018	.426**	.833**	1
	Sig. (2-tailed)	.433	.353	.064	.410	.411	.101	.403	.425	.369	.251	.281	.091	.282	.322	.400	.000	.000	
	N	285	285	285	285	285	285	285	285	285	285	285	285	285	285	285	285	285	285

Based on the results in Table 5.17 it can be concluded that the correlation coefficients in most of the pairs are significantly greater than zero at 5% level as the p-values of the corresponding test statistics are less than 0.05. In addition, the significance of Bartlett's test shown below (Table 5.18) confirmed that the true correlation matrix among the observed variables is significantly different from the identified matrix. These results confirmed that the correlation matrix of the observed variables is suitable for FA. Furthermore, the results in Table 5.18 indicate that the KMO statistic of the observed variables is greater than 0.6 confirming that data satisfied sampling adequacy for Factor Analysis. It was also found that condition for the internal consistency of the questions related to those variables (that is, reliability) is also satisfied as the joint Cronbach α-statistic is greater than 0.8.

Table 5. 18 Results of KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.630
Bartlett's Test of Sphericity	Approx. Chi-Square	1556.462
	Degree of freedom	153
	Significance	0.000

5.4.2 Eigen Analysis for the 18 Variables

Results of the eigen analysis of the correlation matrix of the observed 18 variables are shown in Table 5.19.

Table 5. 19 Results of the Eigen Analysis for the Correlation Matrix of the Observed 18 variables

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	**2.937**	16.317	16.317	**2.937**	16.317	16.317
2	**2.475**	13.752	30.069	**2.475**	13.752	30.069
3	**2.131**	11.837	41.906	**2.131**	11.837	41.906
4	**2.077**	11.537	53.443	**2.077**	11.537	53.443
5	**1.543**	8.575	62.018	**1.543**	8.575	62.018
6	.995	5.530	67.547			
7	.833	4.628	72.175			
8	.741	4.118	76.294			
9	.714	3.966	80.260			
10	.616	3.422	83.681			
11	.541	3.003	86.684			
12	.519	2.882	89.566			
13	.456	2.532	92.098			
14	.431	2.393	94.491			
15	.350	1.947	96.438			
16	.255	1.414	97.852			
17	.234	1.301	99.153			
18	.152	.847	100.000			

The results in Table 5.19 clearly indicate that the initial 18 dimension system can be reduced to 5 dimension system at the expense of losing 38% of the observed variability of the initial 18 dimension system. In other words, according to Kaiser's rule the first five factors can be taken in to further investigation as the eigen values of the observed correlation matrix is greater than one only in the five factors. The scree plot shown in Fig. 5.2 also confirmed the above decision.

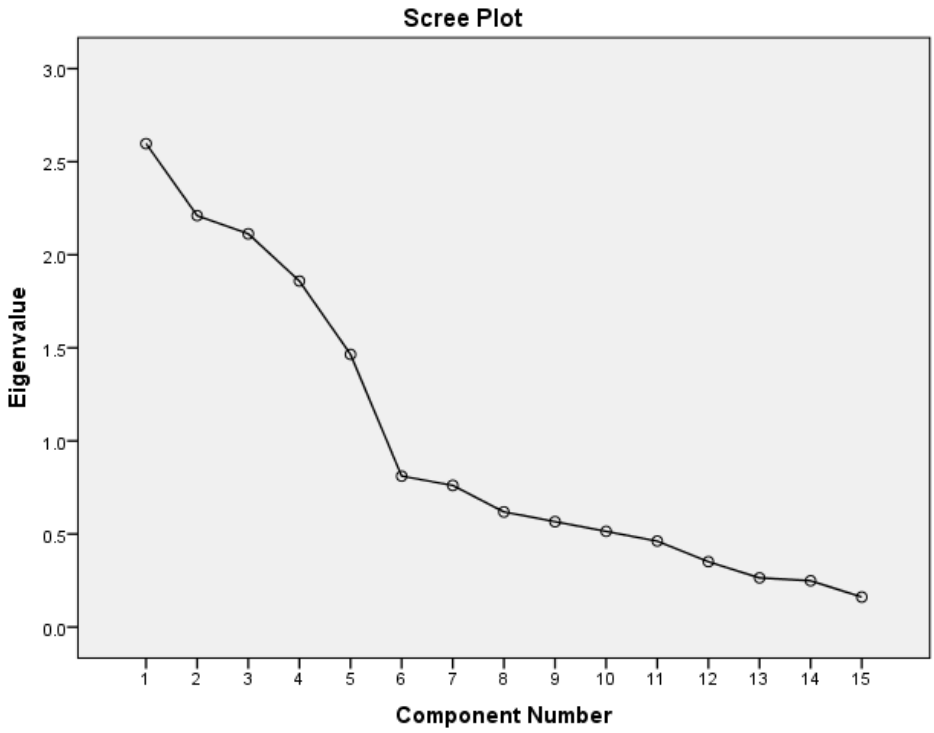

Figure 5. 2 Scree plot of the eigen values of the correlation matrix of 18x18

Results in Table 5.20 clearly indicate that the final communalities of all the variables in the five factor-model tends to one and the final communalities vary from 0.801 (TTSC) to 0.503 (PP). In other words, most of the initial variability of the original data have been acquired by the 5-factor model.

Table 5. 20 Final Communalities of the 5-Factor Model after PCA Extraction Method

Variables	Initial Communalities	Extraction Communalities
PP	1.000	.503
LH	1.000	.712
FM	1.000	.777
EI	1.000	.510
HC	1.000	.558
PPH	1.000	.508
WFBC	1.000	.600
WFBB	1.000	.581
TTSC	1.000	.810
TTM	1.000	.712
TMD	1.000	.476
NET	1.000	.539
ODD	1.000	.525
FSW	1.000	.711
PFLB	1.000	.716
AWS	1.000	.638
SRW	1.000	.814
SYW	1.000	.690

The above five factors were rotated using three types of orthogonal rotations (Varimax, Equamax and Quartimax) and the corresponding results are shown in Tables 5.21 – 5.23 respectively.

Table 5. 21 Factors Loading of the Selected 5-Factor Model (PCF & Varimax)

Variables	Component				
	1	2	3	4	5
PP	**.655**	-.266	-.038	-.024	-.009
LH	**.842**	-.023	.003	-.059	-.009
FM	**.875**	-.055	.083	-.011	-.034
EI	**.595**	.376	.025	.073	.096
HC	**.627**	.241	.002	-.078	.026
PPH	-.249	**.563**	-.009	.035	.103
WFBC	-.192	**-.746**	.037	-.001	.074
WFBB	.011	**.755**	.093	-.033	-.035
TTSC	.088	**.892**	-.006	.039	-.073
TTM	-.034	-.021	.008	**.826**	-.167
TMD	.082	.016	-.002	**-.675**	-.118
NET	.020	.035	-.084	**.712**	.150
ODD	-.008	.047	.080	**.675**	-.247
FSW	.018	-.017	.025	-.017	**.842**
PFLB	.011	-.038	.040	-.041	**.843**
AWS	-.015	.072	**.791**	-.035	.075
SRW	.047	-.001	**.895**	.024	.100
SYW	.026	-.025	**.823**	.011	-.105

Table 5. 22 Factors Loading of the Selected 5-Factor Model (PCF & Equamax)

Variables	Component				
	1	2	3	4	5
PP	**.656**	-.265	-.037	-.026	-.008
LH	**.841**	-.021	.005	-.062	-.008
FM	**.875**	-.053	.086	-.014	-.033
EI	**.594**	.378	.028	.072	.096
HC	**.626**	.243	.004	-.080	.027
PPH	-.250	**.563**	-.009	.037	.101
WFBC	-.190	**-.747**	.034	-.001	.075
WFBB	.009	**.755**	.095	-.033	-.036
TTSC	.086	**.892**	-.003	.039	-.074
TTM	-.031	-.022	.008	**.825**	-.172
TMD	.080	.017	-.002	**-.676**	-.114
NET	.023	.035	-.084	**.713**	.146
ODD	-.006	.046	.080	**.673**	-.251
FSW	.018	-.016	.024	-.012	**.842**
PFLB	.011	-.037	.039	-.036	**.843**
AWS	-.018	.070	**.791**	-.035	.076
SRW	.044	-.003	**.895**	.025	.101
SYW	.024	-.027	**.823**	.010	-.105

Table 5. 23 Factors Loading of the Selected 5-Factor Model (PCF & Quartimax)

Variables	Component				
	1	2	3	4	5
PP	**.655**	-.268	-.039	-.022	-.010
LH	**.842**	-.024	.001	-.058	-.010
FM	**.875**	-.057	.082	-.009	-.034
EI	**.595**	.375	.024	.073	.096
HC	**.628**	.240	.000	-.077	.026
PPH	-.248	**.564**	-.010	.034	.103
WFBC	-.193	**-.746**	.038	-.001	.073
WFBB	.013	**.755**	.091	-.033	-.035
TTSC	.090	**.892**	-.007	.039	-.072
TTM	-.035	-.020	.008	**.827**	-.164
TMD	.083	.016	-.003	**-.674**	-.121
NET	.019	.035	-.084	**.712**	.153
ODD	-.009	.047	.079	**.676**	-.245
FSW	.019	-.018	.026	-.020	**.842**
PFLB	.012	-.038	.041	-.044	**.843**
AWS	-.014	.073	**.791**	-.036	.074
SRW	.048	.000	**.895**	.024	.099
SYW	.028	-.024	**.823**	.012	-.106

Results in Tables 5.21 – 5.23 clearly indicate that the same variables are loaded heavily with the five factors. Based on the results in Table 5.21, the initial variables PP, LH, FM, EI and HC load more highly on the first common factor (F1) compared with the loadings of other variables in F1. The initial variables PPH, WFBB and TTSC load more highly on the second common factor (F2) compared with the loadings of other variables in F2. The loadings of AWS, SRW and SYW in the common factor (F3) is significantly higher than that of others in factor3. The same trend can be seen in the factor loadings in PCF Extraction & Equamax Rotation (Table 5.22) and PCF Extraction & Quartimax Rotation (Table 5.23). Thus it can be concluded that variables identified for the five common factors are the same when factors were extracted using PCF method under all three orthogonal rotations.

In order to test whether the selected variables are invariant under different factor extraction method, the factors extracted using PAF method were transformed via the same three orthogonal rotations. The factor loading obtained are shown in Tables 5.24-5.26. The variables acquired comparatively high loadings with a factor in Tables 5.24 to 5.26 have been highlighted. Comparison of the results in Tables 5.21-5.23 and the

corresponding results in Tables 5.24 - 5.26, same trend can be seen of the selected variables for each factor, irrespective of the factor extraction methods and irrespective of factor rotation methods.

Table 5. 24 Factors Loading of the Selected 5-Factor Model (PAF & Varimax)

Variables	Factor				
	1	2	3	4	5
PP	**.533**	-.205	-.026	-.033	-.002
LH	**.809**	-.017	-.001	-.064	-.006
FM	**.890**	-.057	.079	-.015	-.034
EI	**.501**	.313	.032	.043	.068
HC	**.520**	.198	.006	-.064	.023
PPH	-.184	**.422**	-.002	.035	.059
WFBC	-.176	**-.650**	.025	-.004	.058
WFBB	.016	**.643**	.081	-.020	-.028
TTSC	.093	**.951**	-.005	.042	-.070
TTM	-.027	-.022	-.004	**.871**	-.130
TMD	.077	.007	-.008	**-.477**	-.055
NET	.007	.033	-.058	**.525**	.083
ODD	-.008	.041	.057	**.582**	-.165
FSW	.017	-.016	.020	-.022	**.702**
PFLB	.010	-.034	.035	-.043	**.716**
AWS	-.007	.061	**.635**	-.027	.061
SRW	.042	.000	**.940**	.017	.100
SYW	.027	-.011	**.685**	.013	-.081

Table 5. 25 Factors Loading of the Selected 5-Factor Model (PAF & Equamax)

Variable	Factor				
	1	2	3	4	5
PP	**0.533**	-0.203	-0.025	-0.035	-0.001
LH	**0.808**	-0.015	0.002	-0.067	-0.004
FM	**0.890**	-0.054	0.082	-0.019	-0.032
EI	**0.500**	0.315	0.034	0.041	0.067
HC	**0.519**	0.199	0.008	-0.066	0.023
PPH	-0.185	**0.422**	-0.001	0.037	0.058
WFBC	-0.174	**-0.650**	0.022	-0.003	0.060
WFBB	0.014	**0.642**	0.083	-0.020	-0.029
TTSC	0.090	**0.951**	-0.001	0.042	-0.073
TTM	-0.024	-0.023	-0.003	**0.870**	-0.136
TMD	0.075	0.008	-0.008	**-0.478**	-0.051
NET	0.009	0.033	-0.058	**0.525**	0.079
ODD	-0.006	0.040	0.058	**0.581**	-0.169
FSW	0.016	-0.014	0.019	-0.017	**0.702**
PFLB	0.009	-0.032	0.034	-0.038	**0.717**
AWS	-0.009	0.059	**0.635**	-0.027	0.062
SRW	0.039	-0.003	**0.940**	0.017	0.101
SYW	0.025	-0.014	**0.685**	0.012	-0.080

Table 5. 26 Factors Loading of the Selected 3-Factor Model (PAF & Quartimax)

Variables	Factor				
	1	2	3	4	5
PP	**.532**	-.206	-.027	-.032	-.003
LH	**.809**	-.019	-.003	-.062	-.006
FM	**.890**	-.058	.077	-.013	-.035
EI	**.502**	.312	.030	.043	.068
HC	**.520**	.196	.004	-.063	.022
PPH	-.183	**.422**	-.002	.034	.060
WFBC	-.178	**-.649**	.027	-.004	.057
WFBB	.018	**.643**	.079	-.020	-.027
TTSC	.094	**.951**	-.007	.042	-.069
TTM	-.030	-.021	-.004	**.871**	-.126
TMD	.078	.007	-.008	**-.477**	-.057
NET	.005	.033	-.058	**.524**	.085
ODD	-.009	.042	.057	**.583**	-.163
FSW	.017	-.017	.021	-.024	**.702**
PFLB	.011	-.035	.036	-.046	**.716**
AWS	-.005	.062	**.635**	-.028	.060
SRW	.044	.001	**.940**	.017	.099
SYW	.028	-.010	**.685**	.013	-.082

5.4.3 Summary of Variables Identified

The summary of the factor analysis results is shown in Table 5.27.

Table 5. 27 List of Variables Selected for the Five Factors

Extraction Method	Rotation Method	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
PCA	Varimax	PP LH FM EI HC	PPH WFBC WFBB TTSC	AWS SRW SYW	TTM TMD NET ODD	FSW PFLB
	Quartimax	PP LH FM EI HC	PPH WFBC WFBB TTSC	AWS SRW SYW	TTM TMD NET ODD	FSW PFLB
	Equamax	PP LH FM EI HC	PPH WFBC WFBB TTSC	AWS SRW SYW	TTM TMD NET ODD	FSW PFLB
PAF	Varimax	PP LH FM EI HC	PPH WFBC WFBB TTSC	AWS SRW SYW	TTM TMD NET ODD	FSW PFLB
	Quartimax	PP LH FM EI HC	PPH WFBC WFBB TTSC	AWS SRW SYW	TTM TMD NET ODD	FSW PFLB
	Equamax	PP LH FM EI HC	PPH WFBC WFBB TTSC	AWS SRW SYW	TTM TMD NET ODD	FSW PFLB

5.4.4 Naming the Five Common Factors

Based on the results in Table 5.27 it can be concluded that the five factors can be performed using {PP, LH, FM, EI, HC}, {PPH, WFBC, WFBB, TTSC}, {AWS, SRW, SYW}, {TTM, TMD, NET, ODD} and {FSW, PFLB} irrespective of the types of rotation and types of extraction method. As explained above in Section 5.3.5, the factors factor score coefficient were obtained for the combination of PAF and Varimax to define factors and the corresponding results are shown in Table 5.28.

Table 5. 28 Factor Score Coefficient of the 5-Factor Model (PAF and Varimax)

Initial Variables	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
PP	**.134**	-.029	-.028	-.010	-.006
LH	**.234**	-.015	.009	-.003	.007
FM	**.587**	-.157	-.006	.021	-.046
EI	**.080**	.079	-.029	.042	.046
HC	**.084**	.066	.007	-.021	.018
PPH	-.007	**.022**	.004	.016	-.032
WFBC	-.083	**.091**	.004	-.002	.013
WFBB	.007	**.048**	.033	-.020	.004
TTSC	-.042	**.878**	-.023	.010	-.028
TTM	.026	-.050	.065	**.736**	-.049
TMD	.001	-.003	.029	**.146**	-.049
NET	.001	-.008	-.035	**.145**	.073
ODD	.003	.020	-.033	**.058**	-.051
FSW	.013	.021	-.022	.025	**.435**
PFLB	.010	.014	-.037	.023	**.463**
AWS	-.009	.056	**.077**	-.037	.004
SRW	-.018	-.006	**.828**	.085	.069
SYW	-.016	-.036	**.122**	-.051	-.084

Thus, based on the results in Table 5.28 the five factors can be written as:

$$F_1 = 0.134PP + 0.234LH + 0.587FM + 0.080EI + 0.084HC$$

$$F_2 = 0.222PPH + 0.091WFBC + 0.048WFBB + 0.878TTSC$$

$$F_3 = 0.077AWS + 0.828SRW + 0.122SYW$$

$$F_4 = 0.736TTM + 0.146TMD + 0.145NET + 0.058ODD$$

$$F_5 = 0.435FSW + 0.463PFLB$$

The above five factors can also be named as (i) priority of work arrangement, (ii) dependent care support, (iii) work pressure, (iv) flexibility for work and (v) conflict with supervisors (Table 5.29).

Table 5. 29 Names for five common factors related to WO and IPC /s

Factor Name	Variable Name	Variable
F1- Priority of work arrangement	Primary Priority	PP
	Long Hour	LH
	Family Mater	FM
	Expressing Involvement	EI
	Highly Committed	HC
F2- Dependent care support	Personal Problems at Home	PPH
	Work Family Benefits to Children	WFBC
	Work Family Benefits to Bad Situation	WFBB
	Taking Time for Sick Children	TTSC
F3- Work pressure	Tasks too Much	TTM
	Too Many Duties	TMD
	Not Enough Time	NET
	Overload through Different Duties	ODD
F4- Flexibility at work	Flexibility of Scheduling Work	FSW
	Personal and Family Life Balance	PFLB
F5- Conflict with supervisors	Arguments With Your Supervisor	AWS
	Supervisor Rude at Work	SRW
	Supervisor Yell at Work	SYW

Final Factor Names are shown in Table 5:29. Priority of work arrangement, dependent care support, work pressure, flexibility for work and conflict with supervisors are the five common factors related to 18 variables which were selected significant independent variables on work-family conflict.

5.5 Summary of the Chapter 5

The study identified that employees are a very important part of the working place and that the family is a very important part of the society. The study has derived significantly important findings which reveals the balance of employee's life in working place and family. The study has recognized three types of conflicts such as

(i) time based conflict, (ii) strain based conflict and (ii) behavior based conflict for the general work-family conflict environment. Furthermore, it was found that (i) priority of work arrangement, (ii) dependent care support, (iii) work pressure, (iv) flexibility at work and (v) conflict with supervisors are the five common factors related to 18 variables which were selected among the two significant independent variables on work-family conflict. It should be pointed out that all factors identified in this study are invariant by the three types of rotation methods as well as the two types of factor extraction method.

CHAPTER 6

CONCLUSIONS AND RECOMMENDATIONS

This chapter provides overall conclusions and some recommendations based on the inferences derived in the statistical analysis.

6.1 Conclusions

- It could be surmised that the sewing machine operators have faced with the problem of work-family conflict in Hirdaramani Mercury Apparel (Pvt) Limited (HMAPL), in Seethawaka.
- The work-family conflicts among sewing machine operators were based on time based conflict, strain based conflict and behavior based conflict.
- The work-family conflict is significantly and positively influenced by work load (WO) and interpersonal conflict with supervisors (IPC) and out of those the impact of WO is much higher than that of IPC.
- Work-family conflict has become a significant problem for married women (52%) as well as unmarried women (48%).
- Based on factor analysis it was found that the 13 variables related to WO and IPC can be explained by five common factors and those five factors do not depend on the type of factor extraction method and the type of orthogonal rotation.
- The main factors which could minimize WFC among sewing machine operators are considered as: (i) priority of work arrangement, (ii) dependent care support, (iii) work pressure, (iv) flexibility at work and (v) conflict with supervisors.
- The above factors adversely affect to employees satisfaction and the wellbeing in the industry.
- Thus, the management should consider the above factors in order to minimize WFC among employees, for the well-being of the organization as well as for the employees.

- Similar studies can be carried out at regular intervals by HMAPL and also this statistical approach can be used for other organizations too.

6.2.1 Recommendations

The work-family conflict is a complex concept, indicating the concern of the employees of the apparel industry irrespective of the level they belong to. It influences employees as well as on the organizational with negative consequence. As a result production process of the apparel industry has dropped which has damaged the Sri Lankan economy. Based on the factors identified above on WFC, the following recommendations are given.

- Basic recommendation is the administration of the organization should try to understand general issues of employees and organizational structure can be arranged to balance of work affecting family and family affecting work of the employees.
- Always organizations should give some help to release for their physical and psychological tiredness.
- Welfare unions can be established and counselling services can be provided for the employees who are expecting the help.
- Some plan of financial help can be organized for the employees to stabilized financial wellbeing.

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Appendix 1

Company Profile

Vision Statement of the Company

To be the most contended supplier to our valued customers.

Mission Statement of the Company

To instill professionalism through embracing a positive spirit of enterprise within the group, with the aim of gaining global market share

Corporate Objectives

- To become the preferred employer through achieving the highest quality of work in the industry.
- To be the most outstanding supplier in the industry by exceeding customer expectations.
- To achieve best earnings per employee ratio in the industry.

Quality Policy

Hirdaramani Mercury Apparel (Pvt) Limited – Seethawakaas a team is committed to achieve quality of product by exceeding agreed requirements to contracted specifications and needs of our valued customer, all will strive to achieve these goals through continual improvement, fulfilling the requirements of legislative, social accountabilities and environment protection.

Appendix 2

Functional Areas

Human Resource Department

Human resources department is the main department that controls all the facilities and other requirements belongs to the employees in the company. Also recruiting the employees to the company, conducting the training programs, solved the problems related to the employees are done by the HR department. The main objective in the Human Resources department is to develop, implement and sustain effective Human Resource strategies, policies and procedures in order to ensure all organizational Human Resources practices and strategies are aligned to meet the business requirements of the organization. They work for targeting the above objective to full fill the employee satisfactions.

Finance Department

In the financial accounting section, they are responsible with the all payments to the local suppliers and also the day to day payments. Mainly they recorded all the transactions they made within the year and carried out the audit for every financial year.

Production and Quality Departments

The production and quality departments are the most important departments in HMS. Production flow have direct link with another department in plant. This department is doing main part for production flow. Help to increase efficiency and quality of their products. HMAPL has 22 production lines. They divide production floor in to sections and it manage fewer than two managers. Around 850 machine operators directly involved to productions in this floor. Around 30 supervisor guide machine operators to do productions.

Appendix 2 (Continued)

One of most important thing of garments is its quality. HMAPL has good name for manufacturing higher quality garments for world's brands. HMAPL also try to maintain their garments quality higher stand. In line quality supervisor is a responsible person of production line. He was member of pre-production meeting and he had knowledge about him line production. Normally line quality supervisor has responsibility to solve all quality problems of each operation of garments.

Planning Department

Under planning department there are three departments, such as cutting, packing and material resource planning. Cutting department supply total production requirement according to a proper plan. Packing department do work that regard to the packing the product. Material resource planning department plan the layouts for cutting department.

Maintenance Department

Maintenance department do all the activities that regard to the maintenance woks of the company.

Stores

In the Stores they are responsible to all issuing of raw materials to the all departments, mainly to the production section. Mainly they maintained all the raw materials that required to the production section.

Work Study

Work study section is the systematic examination of the method of carrying on activities so as to improve the effective use of resources and to set up standards of performance for the activities being carried out. Work Study can divide into two main categories.

1) Method Study
2) Work Measurement

Appendix 2 (Continued)

IT Department

HMS is using higher technology for garment manufacturing process. IT department also proved several servicers to get easy for production.

1. Maintenance personal computers and printers
2. Maintains servers
3. Provide communication facility
4. Provide internet facility
5. Maintains internal computer net work
6. Maintenance C.C T.V cameras
7. Other IT facilities

Appendix 3

Questioner Designed to Acquire Information for the Study

University of Moratuwa

Faculty of Engineering

Mathematics Department

M. Sc. In Business Statistics

I am postgraduate student of Moratuwa University of Sri Lanka. This information is taken only for my education purposes. I certify the confidentiality of that information and further frankly I would like to tell there is no any influence from your organization to this task. I am independent with my academic activities.

Please give your honest ideas to achieve success of this task. Put (✓) mark for your answer.

Part-I

01 Gender:

Male	01	Female	02

02 Tenure:

Years	

03 Age:

Below 20	
21-30	
31-40	
41-50	
Above 50	

04. Civil Status:

Married		Unmarried	

05 What position do you hold:-……..

06 Educational Status:

Grade 8	
Grade 8 - O/L	
O/L pass	
O/L - A/L	
A/L pass	
Other	

Part-II

No	Questions	Strongly Disagree	Disagree	Neutral	Agree	Strongly Disagree
	Work Family Conflict					
1	My work keeps me from my family activities more than I would like					
2	The time I must devote to my job keeps me from participating equally in household responsibilities and activities.					
3	I have to miss family activities due to the amount of time I must spend on work responsibilities.					
4	The time I spend on family responsibilities often interfere with my work responsibilities.					
5	The time I spend with my family often causes me not to spend time in activities at work that could be helpful to my career.					
6	I have to miss work activities due to the amount of time I must spend on family responsibilities.					
7	When I get home from work I am often too frazzled to participate in family activities/ responsibilities.					
8	I am often so emotionally drained when I get home from work that it prevents me from contributing to my family.					
9	Due to all the pressures at work, sometimes when I come home I am too stressed to do the things I enjoy.					
10	Due to stress at home, I am often preoccupied with family matters at work					
11	Because I am often stressed from family responsibilities, I have a hard time concentrating on my work					
12	Tension and anxiety from my family life often weakens my ability to do my job					
13	The problem solving behaviors I use in my job are not effective in resolving problems at home					
14	Behavior that is effective and necessary for me at work would be counterproductive at home					
15	Behavior that is effective and necessary for me at work do not help me to be a better parent and spouse					
16	The behavior that work for me at home do not seem to be effective at work					
17	Behavior that is effective and necessary for me at home would be counterproductive at work					

18	The problem-solving behavior that work for me at home does not seem to be as useful at work					
Work Overload						
1	Too many commitments that I am in charge of					
2	The feeling that tasks are too much for me					
3	Postponement of urgently needed recreation					
4	Too many duties that I have to do					
5	Not enough time to fulfill my daily assignments					
6	Overload through different duties that I need to take care of					
7	Situations with so many difficulties that I cannot deal with all of them					
8	The feeling that it is all too much for me					
Work Family Benefit Utilization						
1	Work should be the primary priority in a person's life					
2	Long hours inside the office are the way to achieving advancement					
3	It is best to keep family matters separate from work					
4	It is considered taboo to talk about life outside of work					
5	Expressing involvement and interest in nonworking matters is viewed as healthy					
6	Employees who are highly committed to their personal lives cannot be highly committed to their work					
7	Attending to personal needs, such as taking time off for sick children is frowned upon					
8	Employees should keep their personal problems at home.					
9	The way to advance in this company is to keep nonworking matters out of the workplace					
10	Individuals who take time off to attend to personal matters are not committed to their work					
11	It is assumed that the most productive employees are those who put their work before their family life					
12	Employees are given ample opportunity to perform both their job and their personal responsibilities well					
13	Offering employees flexibility in completing their work is viewed as a strategic way of doing business					
14	The ideal employee is the one who is available 24 hours a day					
15	Work family benefits have helped my children do things they wouldn't have been able to do otherwise.					
16	Work family benefits have helped me get through some bad times					
Flexibility						
1	How much flexibility do you have in selecting the location of where you work					
2	How much flexibility do you have in scheduling when you do your work (e.g., scheduling hours, time of day, etc)					
3	How much flexibility do you have in scheduling what work you will do (e.g., content of work, processes used, etc.)					
4	I have sufficient flexibility in my job at HMS to maintain adequate work and personal and family life balance					
Interpersonal conflict with supervisors and co workers						
1	How often do you get into arguments with your supervisor at work					
2	How often does your supervisor yell at you at work					

3	How often is your supervisor rude to you at work					
4	How often does your supervisor do nasty things to you at work					
5	How often do you get into arguments with your co-workers at work					
6	How often does your co-workers yell at you at work					
7	How often is your co-workers rude to you at work					
8	How often does your co-workers do nasty things to you at work					