

FACTORS INFLUENCING FEMALE JOB INEQUALITY IN SRI LANKAN IT INDUSTRY

Franciscu Hettige Ruwandini Thiwanka Silva

179130J

Degree of Master of Business Administration in Information Technology

Department of Computer Science and Engineering

University of Moratuwa

Sri Lanka

June 2021

FACTORS INFLUENCING FEMALE JOB INEQUALITY IN SRI LANKAN IT INDUSTRY

Franciscu Hettige Ruwandini Thiwanka Silva

179130J

Thesis submitted in partial fulfillment of the requirements for the
Degree of Master of Business Administration in Information Technology

Department of Computer Science and Engineering

University of Moratuwa

Sri Lanka

June 2021

DECLARATION

I declare that this is my own work and this thesis does not incorporate without acknowledgement any material previously submitted for a Degree or Diploma in any other University or institute of higher learning and to the best of my knowledge and belief it does not contain any material previously published or written by another person except where the acknowledgement is made in the text.

Also, I hereby grant to University of Moratuwa the non-exclusive right to reproduce and distribute my thesis/dissertation, in whole or in part in print, electronic or other medium. I retain the right to use this content in whole or part in future works (such as articles or books).

UOM Verified Signature

.....

F. H. R. T. Silva

Signature of the Candidate

Date: 02/06/2021

The above candidate has carried out research for the Master's thesis under my supervision.

UOM Verified Signature

.....

Dr. Surangika Ranathunga

Date: 04/06/2021

Signature of the supervisor

ABSTRACT

Gender inequality is a commonly discussed topic in any part of the world. There are different kinds of ways gender inequality takes place in different environments. The research carried out from this study focused on gender inequality taking place in Sri Lankan IT industry. The objective was to find out the factors or causes which are influencing female job inequality in Sri Lankan IT industry. From the existing literature sources, a set of factors were identified which have caused gender inequality in the IT industry around the globe. These factors were divided into four categories; behavioural, psychological, educational and economic. Based on those factors, a questionnaire was created to identify the factors which are causing female job inequality in Sri Lankan IT industry. The survey was shared with only female professionals in the industry. Survey data was analyzed from the perspective of female employees. An analysis of the demographic data was done. Factors that belong to behavioural category were identified to be reliable. Factor 'Exhaustion' was identified as the most significant factor causing female job inequality in Sri Lankan IT industry.

Keywords: Gender inequality, Inequality, IT industry, Females, Factors

ACKNOWLEDGEMENT

First and foremost, I would like to thank everyone who helped me to complete my research on, “Factors Influencing Female Job Inequality in Sri Lankan IT Industry”.

I would like to express my sincere gratitude to my thesis supervisor Dr. Surangika Ranathunga, senior lecturer of the Department of Computer Science and Engineering, University of Moratuwa for her continuous support, encouragement and attention extended to me in realizing the research objectives.

I also would like to take this opportunity to thank all the females in the IT industry who took part in filling the survey for this research project. Without their inputs, this research would not have been possible.

Apart from them, I would also like to thank my parents, my husband and my brother for their continuous support and encouragement throughout my postgraduate studies.

Finally, I wish to convey my heartfelt thank you to everyone who helped me in many ways to make this research possible.

Thank you.

F. H. R. T. Silva

TABLE OF CONTENTS

DECLARATION	i
ABSTRACT	ii
ACKNOWLEDGEMENT	iii
LIST OF FIGURES	vi
LIST OF TABLES	vii
1. INTRODUCTION	8
1.1. Background	8
1.2. Problem Statement	8
1.3. Research Objectives	9
1.4. Research Design	9
1.5. Outline	9
2. LITERATURE REVIEW	10
2.1. Gender Inequality	10
2.2. Forms of Gender Inequality	12
2.2.1. Biological	12
2.2.2. Psychological	12
2.2.3. Sociological	12
2.2.4. Materialists	12
2.2.5. Religious	13
2.3. Gender Discrimination	14
2.4. Implications of Gender Inequality	15
2.5. Gender Inequality in IT Industry in Sri Lanka	16
2.6. Gender Inequality in IT Industry in Other Countries	22
3. RESEARCH METHODOLOGY	26
3.1. Research Process	26
3.2. Conceptual Framework	27
3.3. Population and Sample Size	34
3.4. Data Collection	34
4. DATA ANALYSIS AND DISCUSSION	35
4.1. Data Preparation for Analysis	35

4.2. Demographic Analysis	35
4.3. Reliability Testing.....	40
4.4. Relationship with Factors Influencing Female Job Inequality in Sri Lankan IT Industry	41
4.5. Summary	44
5. CONCLUSION AND RECOMMENDATIONS	45
5.1. Conclusion	45
5.2. Research Limitations.....	46
5.3. Future Work	46
REFERENCES.....	47
Appendix A: Output of Graduates by Higher Educational Institution and Major Academic Programme: 2016 – 2017 (Sri Lanka University Statistics, 2017)	50
Appendix B: Survey Questionnaire	51

LIST OF FIGURES

Figure 2.1: Female participation in ICT workforce	17
Figure 2.2: Percentage of the male/female ICT related workers	18
Figure 2.3: Distribution of Percentage - Designation Status and Gender	21
Figure 2.4: Distribution of Percentage - Monthly Salary and Gender	21
Figure 3.1: Research Process	26
Figure 3.2: Conceptual Framework.....	28
Figure 4.1: Age distribution	35
Figure 4.2: Employed field in IT.....	36
Figure 4.3: Years of experience in the IT field	37
Figure 4.4: Previously worked number of organizations	37
Figure 4.5: Highest education level	38
Figure 4.6: Male to female ratio.....	38
Figure 4.7: Marital status	39
Figure 4.8: Number of children.....	39

LIST OF TABLES

Table 2.1: Total Graduate (Bachelor Degree) Output - 2017	16
Table 2.2: Percentage distribution of employees by nature of economic activity and sex	19
Table 2.3: Employed person by Industry group 2016 - Male	19
Table 2.4: Employed person by Industry group 2016 - Female.....	19
Table 2.5: Employed person by Industry group 2017 - Male	20
Table 2.6: Employed person by Industry group 2017 - Female.....	20
Table 2.7: Employed person by Industry group 2018 - Male	20
Table 2.8: Employed person by Industry group 2018 - Female.....	20
Table 3.1: Pre Identified Factors	28
Table 3.2: Factor to measurement map	33
Table 4.1: Cronbach's alpha coefficient values.....	40
Table 4.2: Significance level of culture	41
Table 4.3: Significance level of location.....	41
Table 4.4: Significance level of attitude	42
Table 4.5: Significance level of influence.....	42
Table 4.6: Significance level of maternity leave.....	42
Table 4.7: Significance level of family	43
Table 4.8: Significance level of exhaustion	43
Table 0.1: Output of Graduates by Higher Educational Institution and Major Academic Programme: 2016 – 2017.....	50

1. INTRODUCTION

1.1. Background

Gender inequality is one of the most talked common topics in the society. Some claim inequality exists and some do not agree with it. In today's society inequality occurs in different fields and levels. There is no certain reason as to why it is happening but the idea of women not being suitable for jobs that are considered to be better suited for men has been carved in people's minds so much that, it is rather considered an achievement if women get through that boundary. Not only women who never get the right chances but even the ones who are currently doing technical jobs have difficulties continuing due to various reasons.

Many studies have found out different kinds of reasons for this problem occurring in different environments such as cultures, environments, motivation, attitudes, behaviors, choices etc. in these situations. Women tend to quit their technical jobs or pursue non-technical jobs due to various reasons. A woman's life is impacted throughout when it comes to making decisions whether to choose such a field. How she is manipulated by different circumstances when taking such a decision. DiPrete & Alon (2015) Cheryan, Master, & Meltzoff (2015)

1.2. Problem Statement

Gender inequality is discussed in different aspects. Female job inequality is a commonly talked topic in Sri Lankan IT industry. Unofficially, females in the industry talk about this topic more often. Even though women and men get equal levels of higher education, when it comes to the industry, reliable sources have shown that there is gender inequality in Sri Lankan IT industry. Therefore, it is essential to find out the factors which are causing this situation in the industry.

So we attempt to address the problem by the following research question:

What are the factors influencing female job inequality in Sri Lankan IT industry?

1.3. Research Objectives

The main objective of this research is to find out the factors which influence female job inequality in Sri Lankan IT industry. Additionally, the following objectives are also targeted to achieve from this research.

- Identifying the current situation of gender inequality in Sri Lankan IT industry.
- Through existing literature, identifying the factors which are causing female job inequality in the IT industry around the globe.

1.4. Research Design

The research design took a qualitative analysis approach using regression analysis. First, to start on the research process the current gender inequality situation in Sri Lankan IT industry was identified using existing sources. Then, reliable previous literature and sources were used to find out the existing factors which are causing female job inequality in the IT industry around the world. The found factors fell under four categories which led to shape the survey questionnaire.

1.5. Outline

The remainder of the thesis is arranged as follows: The literature review is conveyed in chapter 2 on identifying the current situation of gender inequality in Sri Lankan IT industry followed by finding the causes which are influencing the same around the world. Research methodology is presented in chapter 3 including the research process, conceptual framework, population and data collection. Chapter 4 consists of the analyzing part of the gathered data which was based on a survey questionnaire. Chapter 5 includes the conclusion and recommendations, limitations of the research and future work.

2. LITERATURE REVIEW

The following chapter discusses the literature review of the definitions of what gender inequality is, the implications of it, forms in gender inequality more elaborated in biological, psychological, materialist, sociological and religious forms and gender inequality occurring in IT industry in Sri Lanka. Finally, the factors causing gender inequality in studies done in other countries are discussed.

2.1. Gender Inequality

Gender is a social construction that differentiates characteristics, norms, and behaviors of a male and a female in any specific social context. It is the distinction between females and males operating in the family, the economy, religion, political systems, educational institutions and culture. Gunawardane (2013)

Gender inequality can be defined in many ways. According to Amy Parziale (2008) gender inequality can be defined as “*allowing people different opportunities due to perceived differences based solely on issues of gender.*” She also depicts that gender inequality is based on a person’s views of others based on their gender and also the woman’s or the man’s view of the woman’s or the man’s own abilities and opportunities based on the woman’s or the man’s gender. Gender inequality can demonstrate itself in very obvious discriminatory ways.

As for another definition, according to United Nations (2013) “*Gender inequality is not perpetuated exclusively through differential access to and control over material resources. Gender norms and stereotypes reinforce gendered identities and constrain the behavior of women and men in ways that lead to inequality.*” (www.undp.org/poverty)

According to World Development Report: Gender Equality and Development (2012) defines gender inequality as, “*Gender inequality is both similar to and different from inequality based on other attributes such as race or ethnicity.*” Gender decides the levels of income and class. It should be measured whether inequality is due to inequality of outcomes or inequality of opportunity. It also states that gender inequality decreases the chances of a country to compete at the international level.

As for the general definition of “*Gender Inequality*”, “*Gender inequality is the idea and situation that women and men are not equal. Gender inequality refers to unequal treatment or perceptions of individuals wholly or partly due to their gender. It arises from differences in gender roles.*”

The definitions of Amy Parziale and United Nations are similar while other definitions differ in meaning. Similar definitions talk about situations and circumstances which are caused because of gender issues and limitations. They elaborate into how each person looks at these in a certain angle they have in their minds. Each person realizes and understands it differently. It's mostly how they are shaped from childhood and are based on their thinking. In contrast, other definitions have given exact facts such as race, ethnicity and different treatments as inequality causing points. They directly point out that the facts they have mentioned are the causes for gender inequality.

Amy Parziale (2008) mentions that feminist theories on gender divide into three main categories:

- **Essentialists** believe that something inborn or natural people have within themselves determines their gender. They are prone to acknowledge what they mean as the “feminine” and believe that accepting the “feminine” will allow women to understand their difference from men in a better angle.
- **Constructivists** believe that a person's sense of their gender does not come from something essential. It is created.
- **Performative** theories indicate that gender and all gender behaviours are performative which means that one person will behave in a certain way to perform the required gender roles they believe in thinking that's what the society needs.

2.2. Forms of Gender Inequality

Gender inequality can be discussed in many forms. Depending on the angle it is looked at and the form it is operating in, many views and opinions can be discussed. Therefore, the form of gender inequality reviewed in this research is IT industry. As Amy Parziale (2008) mentions, theories related to the causes of gender inequality can be categorized into five main categories, which are biological, psychological, sociological, materialist, and religious.

2.2.1. Biological

The biological argument points out that physically, women are weaker than men. They are more vulnerable physically because of their ability to have children. Hence, they need to be protected by men. This clause used to have more support during the times when the work that had to be done was physical in nature.

2.2.2. Psychological

Psychological thinkers such as Sigmund Freud developed the “Electra Complex” where women were made to feel inferior to men because they lack male genitalia. This norm was used in psychology until Carol Gillian developed a different theory regarding the ethics of care.

2.2.3. Sociological

Social structures, mainly social, familial, religious and materialists structures reinforce gender inequality in various ways. Gender socialization is a cycle that continues indefinitely from one generation after another generation. However, according to Gunawardane (2013), human behavior is influenced and directed by culture.

2.2.4. Materialists

Gender inequality is caused due to the lack of access to valued resources. Because of their positions in their homes or in their lower-valued jobs, they do not get a chance to access some of the valuable resources in their society.

Gunawardane (2013) mentions women's choices are more constrained when it comes to spending their time, both work and leisurely. This leads to substantial gaps between men's and women's contribution to society. Women are also directed towards taking up traditional feminine jobs rather than to take up a job on what they have studied. This leads to earning lesser salaries and in some situations even though they do comparable jobs, men might get paid more. Mostly women's capabilities are undervalued and under-utilized.

2.2.5. Religious

As for religious beliefs, most people signify that men are superior than women. Followers of this belief, try to maintain it and it leads to gender inequality situations in their culture.

2.3. Gender Discrimination

In addition to forms of gender inequality, it majorly occurs as gender discrimination in most workplaces. Gender discrimination is defined as treating a person differently specifically because of their gender. Amy Parziale (2008). It is difficult to analyze, describe or even prove. Gender discrimination is the most commonly discussed form of gender inequality in a workplace. There are four types of gender discrimination occurring in a workplace; hiring, pay and benefits, promotions and firing. Amy Parziale (2008). Also according to Gunawardane (2013) discrimination is obviously taking place in political leadership and decision-making positions and in economic top management.

Gender discrimination can occur when hiring an employee because of the employer's prejudged thoughts and ideas on how an employee will have their work ethics and style depending on their gender. Most of the time it is quite impossible to prove such biased hiring due to undisclosed reasons in every organization. Pay and benefits could differ because of the skill sets and employment histories each individual has; hence impossible to prove. Likewise, when it comes to promotions as well, one cannot prove a certain individual's promotion was based on their gender. The research done by Gunawardane (2013) concludes that disadvantage and marginalization of women and discrimination against them is a global phenomenon.

When it comes to legal aspects of gender discrimination, Amy Parziale (2008) also mentions that the laws in some countries make it illegal for an employer to be biased towards an individual based on their gender in terms of hiring, firing and other employment conditions such as promotion, benefits and job opportunities. If men and women work equal jobs with an equal sets of skills, putting equal effort, and responsibility in similar working conditions in an organization, employers are forbidden from paying unequal salaries.

2.4. Implications of Gender Inequality

The outcomes of gender inequality occurring in the society impact women differently. The differences between the sexes have caused differences on how an individual is valued or perceived in the society. Hence, these different treatments have caused inequalities between the gender. Gender inequality of each individual may vary greatly depending on the time, place, and the perceptions of those involved.

Gunawardane (2013) explains that gender inequality comes out from in different ways whether it comes from long observed means or means that were created by the society. Women are far behind men in many domains, including education, opportunities in the labor market, and representation in politics. Most of the time the low participation in the labour force is highly cultural. Gender is used as a conceptual tool. It highlights many structural relationships of inequality between men and women in different aspects of labor markets, economic resources, income, education, and training. Gender is considered as a dimension of stratification, but the inequality is observable in all lifestyles.

Jayaweera, Sanmugam & Wanasundara (2006) state even though there were not any evidence on gender based discrimination, the impact could be clearly seen on the choices women had made. The gendered norms have been internalized that it has limited women accessing the different range of jobs in IT which has affected their employment prospects. The gendered processes have limited women accessing science, technology, education and training while socialization processes make women followers than leaders. Due to workplace cultures, only a handful of women hold higher positions in public and private sectors and academic institutions.

2.5. Gender Inequality in IT Industry in Sri Lanka

Sri Lanka has a higher level of literacy rate compared to other Asian regional countries. With heavy investments in education by governments, all males and females get equal education without discrimination. The gender gap in literacy levels is minimum. According to Sri Lanka University Statistics (2017) by University Grants Commission – Sri Lanka, Tables 2.1 and 0.1 (see Appendix A) show in government universities, almost equal number of males and females graduate in computer science/IT field. In table 0.1 (see Appendix A), even though the number of graduates are different in each university, when taken as a total there has been an equal number of male and female graduates from IT stream.

Faculty/Academic Programme	Female	Total
Arts	7,952	10,147
Education	145	158
Management & Commerce	3,463	5,648
Law	440	627
Medicine	699	1,176
Dental Science	101	148
Vet. Science	53	79
Agriculture	456	742
Engineering	420	1,713
Architecture	195	355
Computer Science/IT	577	1,153
Allied Health Sciences	587	741
Science	1,875	3,142
Indigenous Medicine	130	186
Total	17,093	26,015

Table 2.1: Total Graduate (Bachelor Degree) Output - 2017

However, the percentage of females getting the opportunity of equal rights when it comes to their profession is less. The sociological and cultural rules of the country are still preventing women from reaching their goals in their careers even though they get well educated. Some women do not make an effort to apply for a gender biased job thinking they will have lesser chances of getting hired. The percentage of females in managerial, maintenance and design personnel in networks and operating systems are very low Jayaweera, Sanmugam & Wanasundara (2006).

Gender segregation patterns reveal that in the ICT sector women are at the bottom of the hierarchy and are hardly involved in decision making, managerial and development of technology. Mostly in lower skilled IT jobs as data entry. When already existing gender inequality issues are addressed in a society of information technology, there is a possibility of those inequalities worsening and new inequalities being created. They also state that some managers in the IT industry have mentioned that they are aware of gender inequality issues women face adversely. Jayaweera, Sanmugam & Wanasundara (2006)

As a surprising fact, even though some organizations/institutions have the capacity to give more opportunities and not against to training more women, they tend to accept the fact that gender inequality in employment is unavoidable due to social norms and practices. They do not seem to see the issues as inequalities. Jayaweera, Sanmugam & Wanasundara (2006)

According to the National ICT Workforce Survey (2013) the ICT workforce is decided based on gender composition, qualifications and experience. Figure 2.1 (National ICT Workforce Survey, 2013) shows the female participation in ICT workforce.

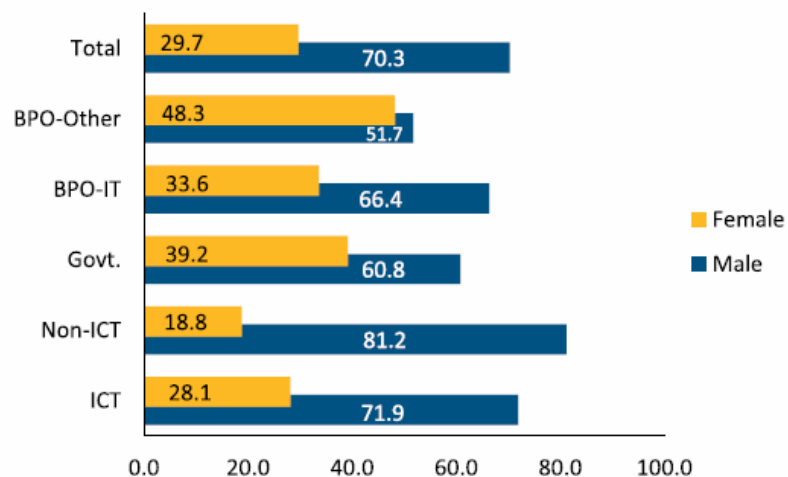


Figure 2.1: Female participation in ICT workforce

The female representation accounts only for 28.1% in ICT category while the male representation accounts for almost 72% of the workforce in Sri Lanka. Whereas, in other Non-ICT, BPO-IT categories male representation is noticeably higher than females to which it can be proved that there is a gender imbalance in ICT and Non-ICT workforce.

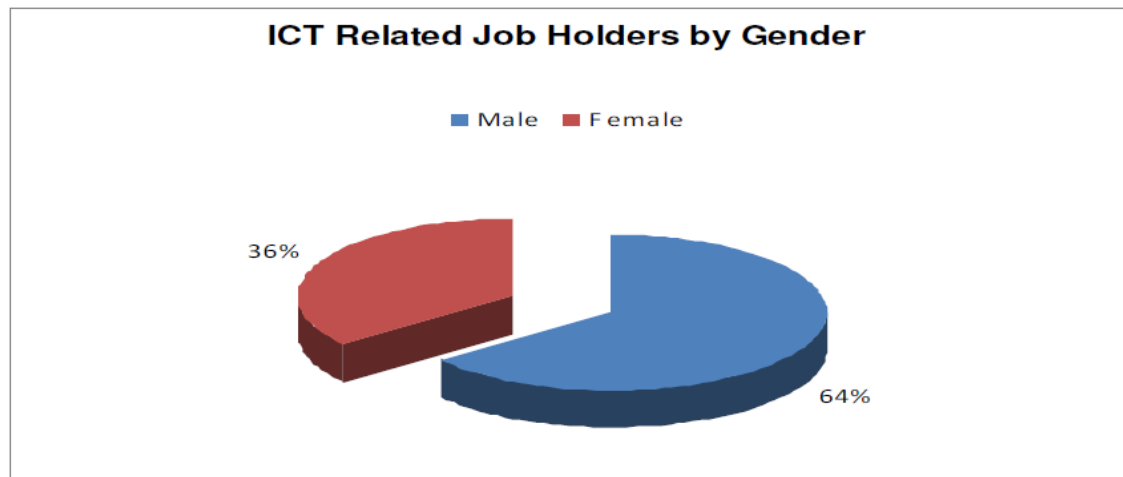


Figure 2.2: Percentage of the male/female ICT related workers

Jayalath, Damayanthi et al. (2010) in their research paper on “*Changing Patterns of ICT Related Occupations in Labour Market of Sri Lanka*” state that according to gathered data from their survey, 64% of males hold ICT related jobs while the female percentage holds only 36%. (Figure 2.2)

The Annual Employment Survey (2016) presents that depending on the nature of the economic activity, the percentage of hired employees in information and communication sector is only 1.3%. In addition, as shown in Table 2.2 (Annual Employment Survey, 2016), the male percentage distribution in information and communication sector is 66.1% while the female percentage is only 33.9%. When calculated the amount population wise, as shown below, only 92,547 females are employed in ICT sector and the number of males employed are 180,453, population almost as twice as the employed females.

Amount of hired employees in ICT sector in Sri Lanka = $21,000,000 * 1.3\% = 273,000$

Amount of males in ICT sector in Sri Lanka = 273,000 * 66.1% = 180,453

Amount of females in ICT sector in Sri Lanka = 273,000 * 33.9% = 92,547

Nature of economic activity	Sex		Total
	Male	Female	
A - Agriculture, forestry and fishing	48.8	51.2	100.0
B - Mining and quarrying	76.2	23.8	100.0
C - Manufacturing	47.7	52.3	100.0
D - Electricity, gas, steam and air conditioning supply	93.4	6.6	100.0
E - Water supply, sewerage, waste management and remediation activities	72.7	27.3	100.0
F - Construction	91.2	8.8	100.0
G - Wholesale and retail trade, repair of motor vehicles and motorcycles	64.7	35.3	100.0
H - Transportation and storage	94.0	6.0	100.0
I - Accommodation and food service activities	90.0	10.0	100.0
J - Information and communication	66.1	33.9	100.0
K - Financial and insurance activities	71.8	28.2	100.0
L - Real estate activities	75.9	24.1	100.0
M - Professional, scientific and technical activities	68.9	31.1	100.0
N - Administrative and support service activities	86.5	13.5	100.0
O - Public administration and defense, compulsory social security	63.6	36.4	100.0
P - Education	18.4	81.6	100.0
Q - Human health and social work activities	26.2	73.8	100.0
R - Arts, entertainment and recreation	57.8	42.2	100.0
S..U - Other service activities	57.4	42.6	100.0
Total	61.1	38.9	100.0

Table 2.2: Percentage distribution of employees by nature of economic activity and sex

The Labour Force Survey Annual Reports in (2016), (2017) and (2018) also state that male representation in IT industry is higher than female representation. Column 10 depicting information and communication field in Tables 2.3 and 2.4 show that males are employed almost three times more than females in the field while Tables 2.5 and 2.6 represent nearly the same in 2017 and Tables 2.7 and 2.8 represent 2018. This shows that there might be inequality taking place in IT industry in Sri Lanka.

Year	Total	Industry Group																
		1	2	3	6	7	8	9	10	11	13	14	15	16	17	19	20	Other
2013	5,024,340	1,423,393	80,653	722,816	524,027	744,407	446,960	123,218	42,128	80,102	37,716	70,383	371,194	90,634	49,153	85,164	95,909	36,483
2014	5,075,425	1,375,427	69,796	734,033	540,150	723,692	467,394	124,655	47,897	82,803	31,456	81,190	384,657	96,971	55,148	102,024	115,389	42,743
2015	5,097,797	1,360,831	57,116	741,643	527,419	756,298	465,920	140,042	41,206	79,485	42,853	91,639	395,291	92,824	45,976	105,307	107,469	46,478
2016	5,149,948	1,302,613	56,762	739,372	590,459	770,376	495,894	129,928	45,525	90,506	33,125	83,937	394,974	105,604	53,843	99,146	119,873	38,011

Table 2.3: Employed person by Industry group 2016 - Male

Year	Total	Industry Group																
		1	2	3	6	7	8	9	10	11	13	14	15	16	17	19	20	Other
2013	2,656,938	897,822	10,392	643,346	15,495	301,979	20,875	48,018	13,281	57,242	23,201	25,490	199,157	211,134	78,881	35,997	66,104	8,524
2014	2,625,065	847,432	4,847	655,218	23,382	288,755	13,937	56,591	15,141	63,069	15,900	20,057	209,643	216,955	71,802	29,250	79,735	13,351
2015	2,733,179	883,716	3,498	666,265	22,230	303,507	14,418	62,738	11,165	65,023	22,097	28,579	204,958	231,350	91,389	38,461	69,786	13,999
2016	2,797,735	851,261	3,145	681,256	26,509	331,961	20,234	73,154	15,997	68,819	21,578	23,553	214,231	238,233	87,993	38,405	89,228	12,178

Table 2.4: Employed person by Industry group 2016 - Female

Year	Total	Industry Group																
		1	2	3	6	7	8	9	10	11	13	14	15	16	17	19	20	Other
2013	5,024,340	1,423,393	80,653	722,816	524,027	744,407	446,960	123,218	42,128	80,102	37,716	70,383	371,194	90,634	49,153	85,164	95,909	36,483
2014	5,075,425	1,375,427	69,796	734,033	540,150	723,692	467,394	124,655	47,897	82,803	31,456	81,190	384,657	96,971	55,148	102,024	115,389	42,743
2015	5,097,797	1,360,831	57,116	741,643	527,419	756,298	465,920	140,042	41,206	79,485	42,853	91,639	395,291	92,824	45,976	105,307	107,469	46,478
2016	5,149,948	1,302,613	56,762	739,372	590,459	770,376	495,894	129,928	45,525	90,506	33,125	83,937	394,974	105,604	53,843	99,146	119,873	38,011
2017	5,279,158	1,279,980	60,026	822,518	655,436	814,523	495,005	134,587	50,551	93,495	46,100	109,152	336,452	114,026	48,245	83,172	84,014	51,877

Table 2.5: Employed person by Industry group 2017 - Male

Year	Total	Industry Group																
		1	2	3	6	7	8	9	10	11	13	14	15	16	17	19	20	Other
2013	2,656,938	897,822	10,392	643,346	15,495	301,979	20,875	48,018	13,281	57,242	23,201	25,490	199,157	211,134	78,881	35,997	66,104	8,524
2014	2,625,065	847,432	4,847	655,218	23,382	288,755	13,937	56,591	15,141	63,069	15,900	20,057	209,643	216,955	71,802	29,250	79,735	13,351
2015	2,733,179	883,716	3,498	666,265	22,230	303,507	14,418	62,738	11,165	65,023	22,097	28,579	204,958	231,350	91,389	38,461	69,786	13,999
2016	2,797,735	851,261	3,145	681,256	26,509	331,961	20,234	73,154	15,997	68,819	21,578	23,553	214,231	238,233	87,993	38,405	89,228	12,178
2017	2,929,021	860,204	2,988	758,418	32,108	345,921	17,986	75,792	19,713	66,319	23,468	43,211	190,280	263,103	101,027	35,745	77,667	15,070

Table 2.6: Employed person by Industry group 2017 - Female

Year	Total	Industry Group																
		1	2	3	6	7	8	9	10	11	13	14	15	16	17	19	20	Other
2014	5,075,425	1,375,427	69,796	734,033	540,150	723,692	467,394	124,655	47,897	82,803	31,456	81,190	384,657	96,971	55,148	102,024	115,389	42,743
2015	5,097,797	1,360,831	57,116	741,643	527,419	756,298	465,920	140,042	41,206	79,485	42,853	91,639	395,291	92,824	45,976	105,307	107,469	46,478
2016	5,149,948	1,302,613	56,762	739,372	590,459	770,376	495,894	129,928	45,525	90,506	33,125	83,937	394,974	105,604	53,843	99,146	119,873	38,011
2017	5,279,158	1,279,980	60,026	822,518	655,436	814,523	495,005	134,587	50,551	93,495	46,100	109,152	336,452	114,026	48,245	83,172	84,014	51,877
2018	5,300,310	1,270,968	59,514	785,112	688,318	835,444	483,618	153,022	38,942	92,422	53,152	118,324	286,200	135,153	52,200	83,418	119,488	45,016

Table 2.7: Employed person by Industry group 2018 - Male

Year	Total	Industry Group																
		1	2	3	6	7	8	9	10	11	13	14	15	16	17	19	20	Other
2014	2,625,065	847,432	4,847	655,218	23,382	288,755	13,937	56,591	15,141	63,069	15,900	20,057	209,643	216,955	71,802	29,250	79,735	13,351
2015	2,733,179	883,716	3,498	666,265	22,230	303,507	14,418	62,738	11,165	65,023	22,097	28,579	204,958	231,350	91,389	38,461	69,786	13,999
2016	2,797,735	851,261	3,145	681,256	26,509	331,961	20,234	73,154	15,997	68,819	21,578	23,553	214,231	238,233	87,993	38,405	89,228	12,178
2017	2,929,021	860,204	2,988	758,418	32,108	345,921	17,986	75,792	19,713	66,319	23,468	43,211	190,280	263,103	101,027	35,745	77,667	15,070
2018	2,714,855	772,730	2,622	678,808	24,888	305,972	18,507	85,123	16,278	80,908	33,134	48,654	148,149	289,939	90,661	33,314	74,815	10,352

Table 2.8: Employed person by Industry group 2018 - Female

As of the new appointments made in August 2020 at The Information and Communication Technology Agency of Sri Lanka (ICTA), the board of directors comprises zero females. (<https://www.icta.lk/>)

In salary differences, Jayaweera, Sanmugam & Wanasundara (2006) state that more men than women earned more than Rs. 40,000 or more. They also conclude that the gendered norms internalization limits women's access to a diverse range of jobs in IT field and that affects their employment prospects unfavorably.

The survey results of Jayalath, Damayanthi et al. (2010) of Figure 2.3 also mention that more men than women hold executive, professional and technical designations

than females in the IT industry. Figure 2.4 (Jayalath, Damayanthi et al., 2010) shows the percentage distribution of monthly salary and gender. More females earn 20,000 or below while more men earn 20,000 or above. Almost four times the female percentage of males earn more than 40,000.

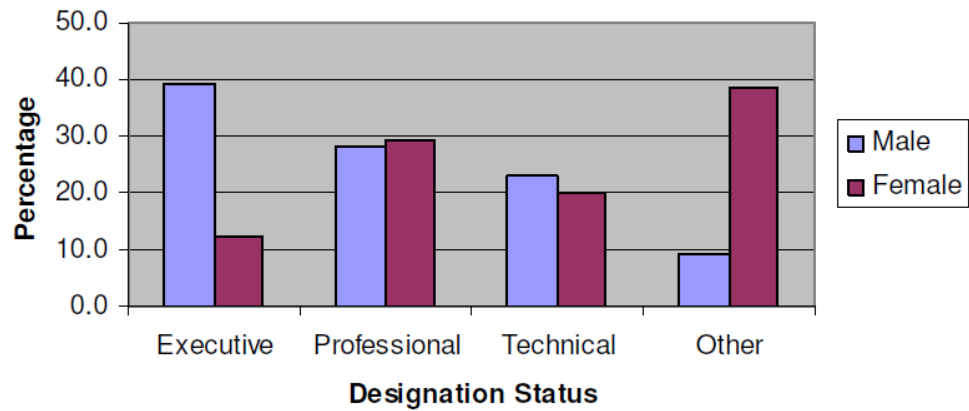


Figure 2.3: Distribution of Percentage - Designation Status and Gender

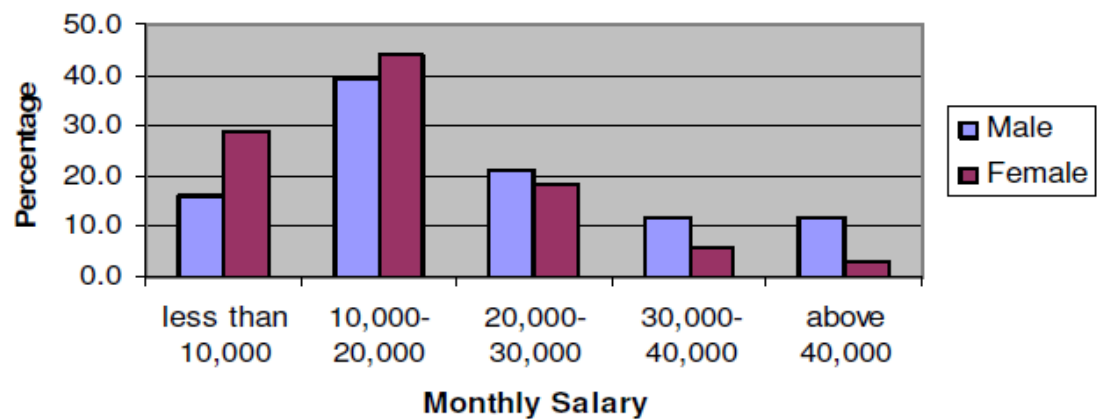


Figure 2.4: Distribution of Percentage - Monthly Salary and Gender

As a summary, it can be concluded that, in Sri Lanka, in higher education levels in information technology there is no gender segregation but when it comes to the industry males are accountable for twice or thrice more IT related jobs than females. A lesser number of females are hired. When the ladder goes up in top management, females holding top positions are very less. When it comes to pay rates, men earn twice as much as women in IT related jobs. All the above facts conclude the fact that there is gender inequality in Sri Lankan IT industry.

2.6. Gender Inequality in IT Industry in Other Countries

Gender inequality situations in Western and Asian countries other than Sri Lanka can be discussed in different aspects. There are many different aspects between these regions, so need to look at the problem in a regional context. The research papers discussed below have taken place widely in geographically dispersed locations. All the researches that have been referred to are not limited to one specific region. Some have taken place in Asian regional countries such as India, Malaysia and China. One research has been done in United Arab Emirates and one in the United States of America. European countries such as UK and Greece and Oceania countries such as Australia and New Zealand have been in two instances.

The research done by Georgiadou, Abu - Hassan et al. (2009) elaborates about the women's under-representation and minimal chances for the progression of their careers in senior positions in information systems and information technology in western countries. To get the results, the authors had done a survey in the United Kingdom, Greece, Malaysia, and China distributing it mostly with female IT and computing students and few male students. The survey involved a total of 368 respondents where the respondents, 28 were from the UK, 59 were from Greece, 32 were from Malaysia and 249 were from China. Through the research, the authors had found that issues of choices in career, affection of maternity leave, careers in future, family, culture, economic and political reasons and government policies have an impact on the participation of women in IT. It also discusses about the opportunities and challenges women will face if they are to continue working in the IT field.

However, the survey has been distributed only among computing students rather than females employed in the industry and the population lacks responses from the UK, Greece and Malaysia when compared to responses from China.

Smith (2013), in her research discusses about how women, doing jobs in male dominated workplaces had to do additional work because being a female became an additional job in itself. She claims that this type of work is often invisible, emotional and mostly unrecognized. A crisis in conflicts of the genders. The author has used a life history framework where she has interviewed 15 women from manual trades and

15 women from occupations in IT from 2007 to 2009. An interview has had two parts, wherein first part, participants were asked to share their life story and in the second part, specific details on particular topics were asked. Using a qualitative method, the contradictions participants experienced when doing their jobs were listed. As the results of the research, the author has listed the kinds of emotions, emotional processes and emotional solutions such as persistence, feeling disheartened and devalued, pressure, exhaustion and few more women had to go through in order to survive in their jobs. The above were results of having to work more on to not face rejection based on gender.

The research of Dhar-Bhattacharjee & Richardson (2017) shows the situation of female IT professionals working in Multi-National Enterprises in different regions of India. It also discusses how a particular geographical region, class and caste of a person, values and norms related to gender shapen the life and work of an Indian woman. The research has taken place as a part of a study between two countries where the relations related to gender were compared between the IT sectors of the UK and India. The result gathering was done by doing interviews and observing the females during site visits. The ‘Safari method’ was used by having a field worker having excellent knowledge in languages and in both cultures of the UK and India. Through the research process, material structures and cultural meanings were aimed to be understood. From the findings, it was found out that regional influences, class and caste differences take place in IT workplaces leading to inequality.

Hassan Al Marzouqi & Forster (2011), in their research have discussed the reasons on why not enough women in United Arab Emirates (UAE) represent their information technology sector and the obstacles those women have faced while being employed in the IT field. To gather data, in 2010 the authors have done 20 structured in-depth interviews with Emirates women who had worked at least five years in UAE IT sector. Their findings showed that women are under-represented specifically in private sector, only a few hold senior positions and zero technology entrepreneurs at the time of the research. That lead to the conclusion of reasons as cultural and familial factors and negative gendered attitudinal assumptions taking place in UAE IT sector.

In the paper by Dutta Gupta, Raychaudhuri, & Haldar (2015), they have researched to find out gender inclusivity of female participation in the Indian IT industry. They have also proposed some policy initiatives to support the involvement of females in the workforce. A set of data from 63 IT companies in Delhi, Bengaluru and Kolkata has been used for the study. They have used an ordered logit model to find out the causes of female absorption in the IT industry and has used ANOVA method to study the variations of female participation in the workforce. Their results showed that the females' percentage and mobility in an organization solely depend on their location whose impact is external to an organization. Internal factors such as the company size or the level of skills do not decide women's larger participation in the organization. As for limitations, the authors have mentioned that a lot of companies are reluctant to reveal their data on female employee percentages. Otherwise, the results would have been more accurate.

Hunt (2012) in her research, has done it to find out why there is a higher exit rate of women than men from science and engineering field jobs. She claims the exit rate in engineering is much higher than the exit rate in science and the rate is about 60%. She has used the 1993 and 2003 National Surveys of College Graduates to gather data and linear probability regression to analyze the data. As results she has found that the higher exit rate in engineering is due to opportunities in payment and promotions, not enough guidance in mentoring and networks and being discriminated by superiors and coworkers. In contrast, she also mentions that family considerations and work conditions have no impact on the exit rate of women discussed in the paper.

Trauth (2002) in her research, developing a theoretical perspective, has tested the influences of socio-cultural facts on women who work in information technology professions in New Zealand and Australia. She has conducted broader interviews with 31 women who are practitioners and academics in the IT field. As the results the author has found out that the respondents went through a range of influences individually, institutionally and culturally in their professional careers in IT. They also have shown their personal characteristics which have supported them to get through and succeed in their jobs.

Considering all the above previous work that had been done, inequality is the same in all countries. Factors such as culture and family are the major influences that have led to inequality regardless of a woman's geographical location. Most found reasons of all the Asian, Oceania and European regional countries had been societal reasons. Irrespective of their region, USA, UK, Greece, Malaysia and China have shown economic reasons causing inequality. Contradictive to the common norms and beliefs, one research done in India only shows women's physical location as the main cause for inequality not culture nor family. On the other hand, research done in Australia and New Zealand show culture and family as main factors against the common beliefs based on their region.

3. RESEARCH METHODOLOGY

As shown from the stats discussed in the previous chapter, there is gender inequality in Sri Lankan IT industry. Relying on common norms is no longer valid. Also, solely based on the previous research discussed above, the current situation in Sri Lanka cannot be analyzed as well. It was identified in the previous work that factors found do not depend on geographical location nor the economic state of the country. Conflicting insights have been shown. Hence, a reliable measurement has to be done to find the factors which cause female job inequality in Sri Lankan IT industry.

3.1. Research Process

Figure 3.1 illustrates the process used in this research. It was explicitly focused on the perspective of female employees. As the first phase, the gender inequality situation in the Sri Lankan IT industry was identified. Then the factors which cause gender inequality in IT industry around the globe were found as pre-identified factors. In the second phase, a detailed questionnaire was distributed among females in the Sri Lankan IT industry.

The questionnaire consisted a set of questions where the females were asked about their academic decisions and time while the rest of the questions were asked about their professional careers. Both personal and professional sides of the females were considered in the questions. As the final steps a qualitative approach was used in the data analysis to validate the results gathered from the survey to identify all the factors which influence female job inequality in Sri Lankan IT industry.

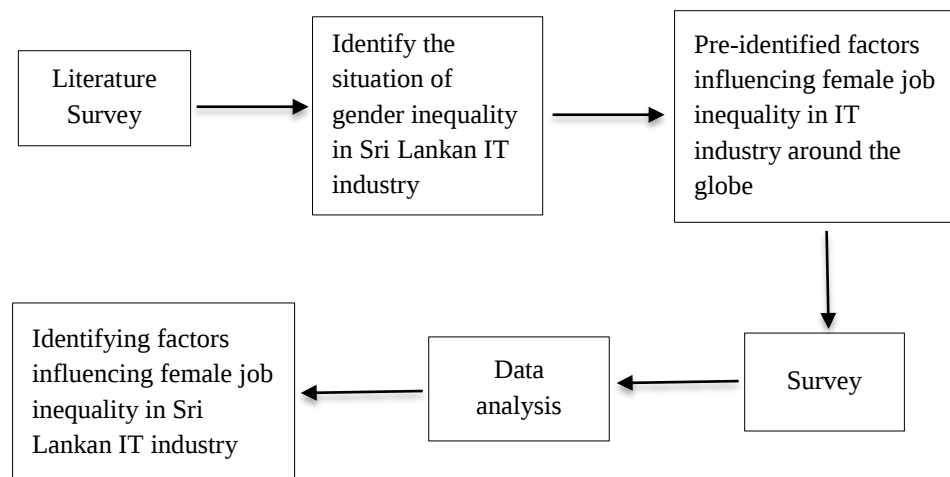


Figure 3.1: Research Process

3.2. Conceptual Framework

The following factors listed in Table 3.1 were identified as the key factors affecting gender inequality in different countries. Pay and promotion, mentoring and network, choices in career, family, maternity leave, culture, location, economic and political reasons, government policies, discrimination, persistence, being valued, motivation, pressure, exhaustion, attitude, and influence could be identified as key factors affecting inequality in other countries. The factors which were identified from the literature review laid the foundation to identify the factors which were causing female job inequality in Sri Lankan IT industry. Those factors were used to check whether the same factors are causing female job inequality in Sri Lankan IT industry like it was proven in their respective studies. Hence, only the factors found from the literature review were considered.

The factors discussed in chapter 2.6. have been identified at industrial and academic levels. Some authors have interviewed or shared surveys with students while some authors have done the same process with professionals in the industry. Most data gathering processes have been done in the industry. Even though the factors have overlapped, they have occurred in one academic environment and in three professional environments.

Factors Influencing Inequality	Sources						
	Hunt (2012)	Georgiadou, Abu-Hassan et al. (2009)	Smith (2013)	Dhar-Bhattacharjee & Richardson (2017)	Hassan Al Marzouqi & Forster (2011)	Dutta Gupta, Raychaudhuri, & Halder (2015)	Trauth (2002)
Salary	×						
Promotion	×						
Discrimination	×						
Mentoring and network	×						
Career choice		×					
Maternity leave		×					
Family		×		×	×		×

Culture		×		×	×		×
Economic reasons		×					
Political reasons		×					
Government policies		×					
Persistence			×				
Devalued			×				
Motivation			×				
Pressure			×				
Exhaustion			×				
Attitude					×		
Location						×	
Influence				×			×

Table 3.1: Pre Identified Factors

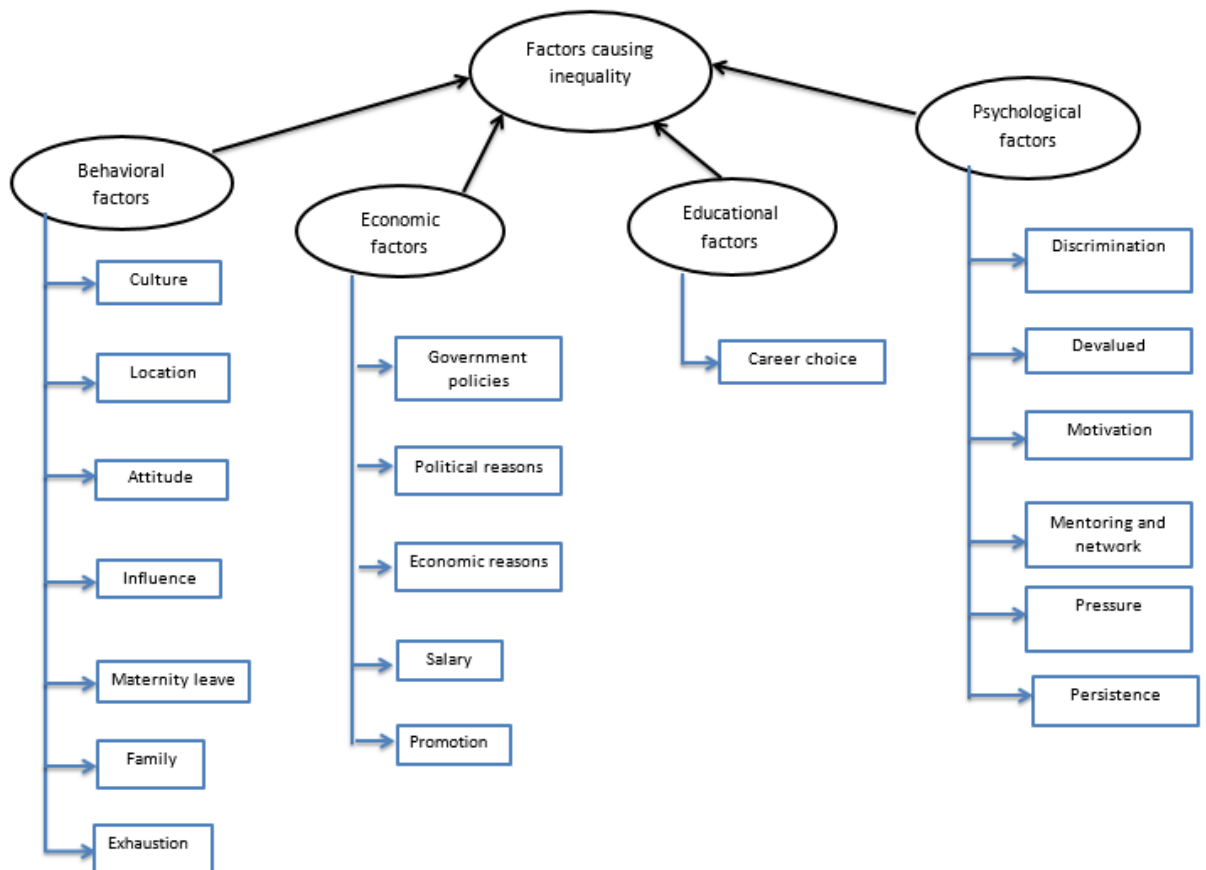


Figure 3.2: Conceptual Framework

From the found factors a subset was identified to be used in the research process. Some factors such as ‘repair’, having the feeling to have the need to protect, ‘battle’, hide, use or display sexuality, having to learn a new language, trying to feel safer in the presence of unemotional or offensive language being used and feeling confused to having included in sexist conversations about other women for personal gain had to be omitted due to measurable limitations since a survey approach was used as the data collection method. As shown in Figure 3.2, the conceptual framework, the selected subset was categorized into four sub categories; behavioural, psychological, educational and economic.

Based on the research framework, the following hypothesis can be derived.

Let;

H_A : Alternative Hypothesis

H_0 : Null Hypothesis

H₁

H_{10} – There is no significant relationship between culture and female job inequality in Sri Lankan IT industry

H_{1A} – There is a significant relationship between culture and female job inequality in Sri Lankan IT industry

H₂

H_{20} – There is no significant relationship between location and female job inequality in Sri Lankan IT industry

H_{2A} – There is a significant relationship between location and female job inequality in Sri Lankan IT industry

H₃

H_{30} – There is no significant relationship between attitude and female job inequality in Sri Lankan IT industry

H_{3A} – There is a significant relationship between attitude and female job inequality in Sri Lankan IT industry

H₄

H₄₀ – There is no significant relationship between influence and female job inequality in Sri Lankan IT industry

H_{4A} – There is a significant relationship between influence and female job inequality in Sri Lankan IT industry

H₅

H₅₀ – There is no significant relationship between maternity leave and female job inequality in Sri Lankan IT industry

H_{5A} – There is a significant relationship between maternity leave and female job inequality in Sri Lankan IT industry

H₆

H₆₀ – There is no significant relationship between family and female job inequality in Sri Lankan IT industry

H_{6A} – There is a significant relationship between family and female job inequality in Sri Lankan IT industry

H₇

H₇₀ – There is no significant relationship between exhaustion and female job inequality in Sri Lankan IT industry

H_{7A} – There is a significant relationship between exhaustion and female job inequality in Sri Lankan IT industry

H₈

H₈₀ – There is no significant relationship between government policies and female job inequality in Sri Lankan IT industry

H_{8A} – There is a significant relationship between government policies and female job inequality in Sri Lankan IT industry

H₉

H₉₀ – There is no significant relationship between political reasons and female job inequality in Sri Lankan IT industry

H_{9A} – There is a significant relationship between political reasons and female job inequality in Sri Lankan IT industry

H₁₀

H₁₀₀ – There is no significant relationship between economic reasons and female job inequality in Sri Lankan IT industry

H_{10A} – There is a significant relationship between economic reasons and female job inequality in Sri Lankan IT industry

H₁₁

H₁₁₀ – There is no significant relationship between salary and female job inequality in Sri Lankan IT industry

H_{11A} – There is a significant relationship between salary and female job inequality in Sri Lankan IT industry

H₁₂

H₁₂₀ – There is no significant relationship between promotion and female job inequality in Sri Lankan IT industry

H_{12A} – There is a significant relationship between promotion and female job inequality in Sri Lankan IT industry

H₁₃

H₁₃₀ – There is no significant relationship between career choice and female job inequality in Sri Lankan IT industry

H_{13A} – There is a significant relationship between career choice and female job inequality in Sri Lankan IT industry

H₁₄

H₁₄₀ – There is no significant relationship between discrimination and female job inequality in Sri Lankan IT industry

H_{14A} – There is a significant relationship between discrimination and female job inequality in Sri Lankan IT industry

H₁₅

H₁₅₀ – There is no significant relationship between devalue and female job inequality in Sri Lankan IT industry

H_{15A} – There is a significant relationship between devalue and female job inequality in Sri Lankan IT industry

H₁₆

H₁₆₀ – There is no significant relationship between motivation and female job inequality in Sri Lankan IT industry

H_{16A} – There is a significant relationship between motivation and female job inequality in Sri Lankan IT industry

H₁₇

H₁₇₀ – There is no significant relationship between mentoring and network and female job inequality in Sri Lankan IT industry

H_{17A} – There is a significant relationship between mentoring and network and female job inequality in Sri Lankan IT industry

H₁₈

H₁₈₀ – There is no significant relationship between pressure and female job inequality in Sri Lankan IT industry

H_{18A} – There is a significant relationship between pressure and female job inequality in Sri Lankan IT industry

H₁₉

H₁₉₀ – There is no significant relationship between persistence and female job inequality in Sri Lankan IT industry

H_{19A} – There is a significant relationship between persistence and female job inequality in Sri Lankan IT industry

Factor Group	Factor	Measurement (Survey Questions)
Behavioural Factors	Culture	Q. 10
	Location	Q. 11
	Attitude	Q. 14
	Influence	Q. 13
	Maternity Leave	Q. 15
	Family	Q. 16
	Exhaustion	Q. 12
Economic Factors	Government Policies	Q. 32, Q. 33
	Political Reasons	Q. 34
	Economic Reasons	Q. 31
	Salary	Q. 29
	Promotion	Q. 30
Educational Factors	Career Choice	Q.17, Q. 18, Q. 19
Psychological Factors	Discrimination	Q. 20, Q. 21, Q. 22
	Devalue	Q. 23
	Motivation	Q. 24
	Mentoring and Network	Q. 25, Q. 26
	Pressure	Q. 27
	Persistence	Q. 28

Table 3.2: Factor to measurement map

The factor to measurement mapping of survey questions is shown in the Table 3.2 above.

3.3. Population and Sample Size

The population representing the research is women who have worked or are working in Sri Lankan IT industry. As stated in The Annual Employment Survey (2016), the percentage of hired employees in information and communication sector is only 1.3% and from that percentage the female percentage is only 33.9%. Based on that, there are 92,547 females representing Sri Lankan IT industry. The sample size was calculated using Cochran's formula. Cochran (1977). With a population of 92,547, confidence level of 95% and margin of error as 0.05, the sample size was calculated as 383. Bartlett, Higgins, & Kotrlik (2001).

3.4. Data Collection

Data were gathered using a detailed questionnaire (see Appendix B) distributed among females in the Sri Lankan IT industry. The questionnaire was divided into two parts. First, demographic questions were asked. Then, sets of questions related to behavioural, educational, psychological and economic factors were asked. Almost all of the questions in the second part required responses on a five-point Likert scale where it varied from strongly agree to strongly disagree. 410 responses were collected in the data collection.

4. DATA ANALYSIS AND DISCUSSION

The following chapter provides the demographic analysis, reliability analysis and hypothesis testing to find the relationship between the results and the female job inequality in Sri Lankan IT industry. The analysis and discussion were done from the perspective of females.

4.1. Data Preparation for Analysis

410 responses were collected from the questionnaire. There were no missing values in all the responses. 9 responses were removed due to unreliable answers for question number 16 (see Appendix B). Those 9 respondents had chosen other available responses along with “None of the above” response. Since those types of answers are incorrect and conflicting, they were removed. Finally, 401 responses were used for data analysis.

4.2. Demographic Analysis

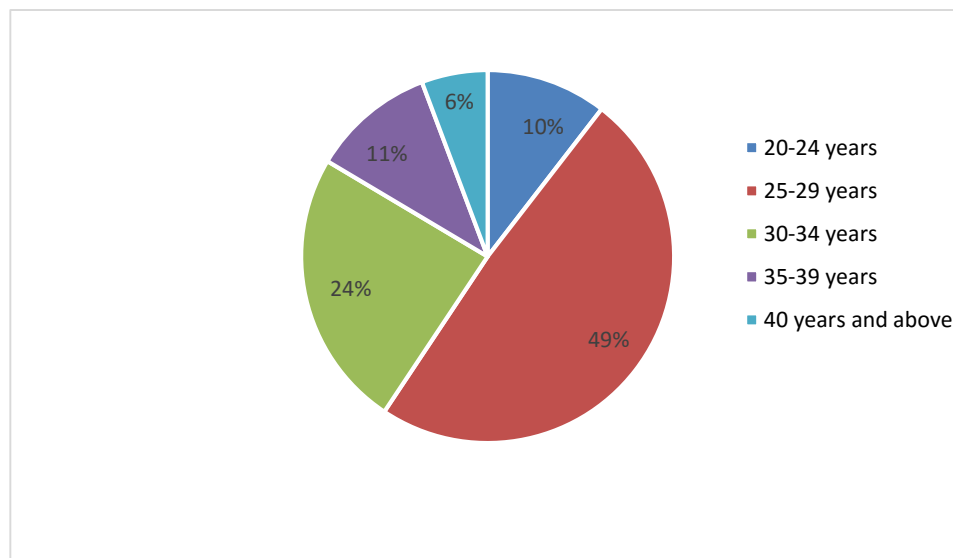


Figure 4.1: Age distribution

Figure 4.1 shows the distribution of age of the females who responded to the survey questionnaire. The majority, almost 50% of the sample are between 25 - 29 years of age category. 24% accounts for 30 – 34 years of age category. It can be identified

that the sample data falls more towards younger females. The reason for more of a younger crowd might be due to the distribution of the survey questionnaire between younger females as they were easily approachable.

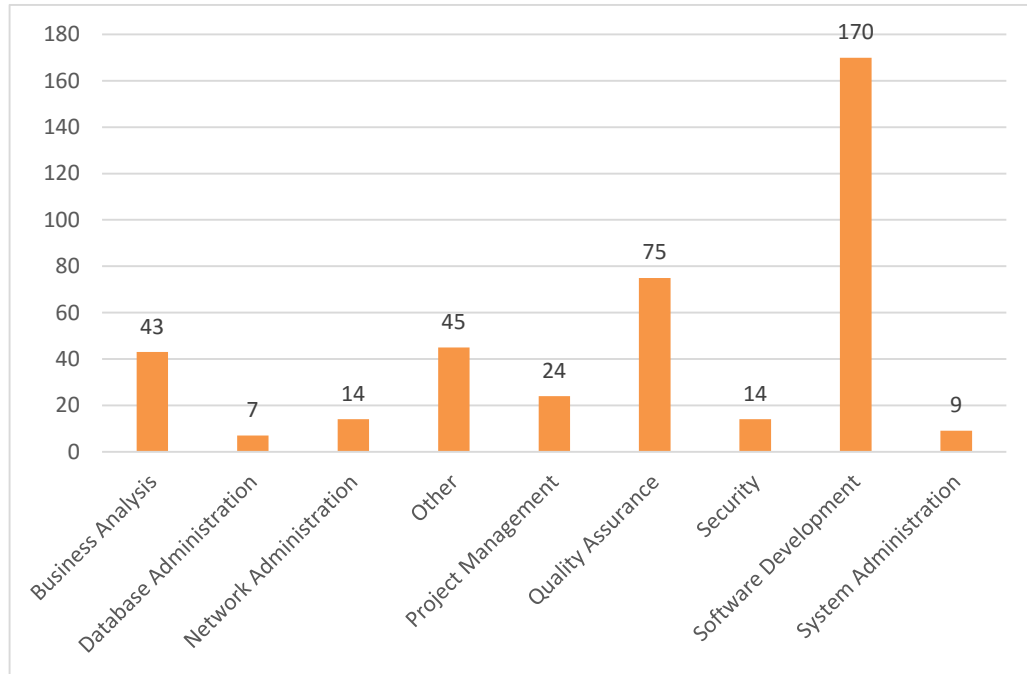


Figure 4.2: Employed field in IT

Figure 4.2 depicts the specific field the respondents are employed in information technology sector. The highest respondents, 42% are from software development while the second highest respondents are from quality assurance. Only a handful of female respondents are employed in database administration and system administration.

The years of experience respondents have in information technology sector is shown in Figure 4.3. 27% of females have experience below 3 years while 26% of the respondents have 3 to 5 years. Respondents with 7 to 10 years and more than 10 years of experience account for 14% each.

Figure 4.4 shows the number of organizations each respondent has worked previously in their career. 27% have worked at one organization previously which means they were in their second employment at the time they took the survey. 26%

have worked at two organizations while only 8% have worked at four or more organizations.

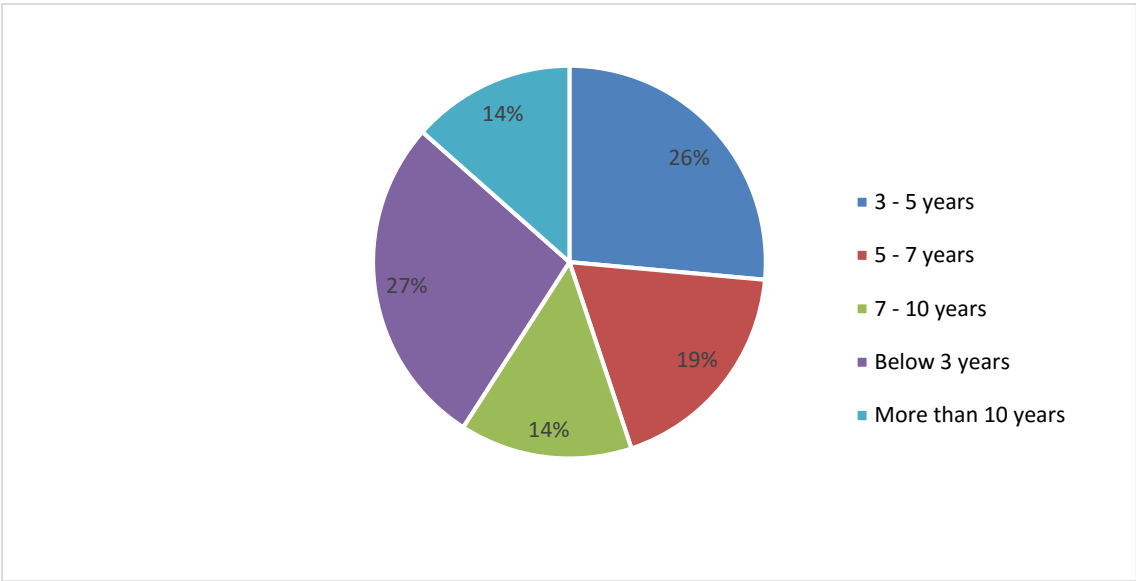


Figure 4.3: Years of experience in the IT field

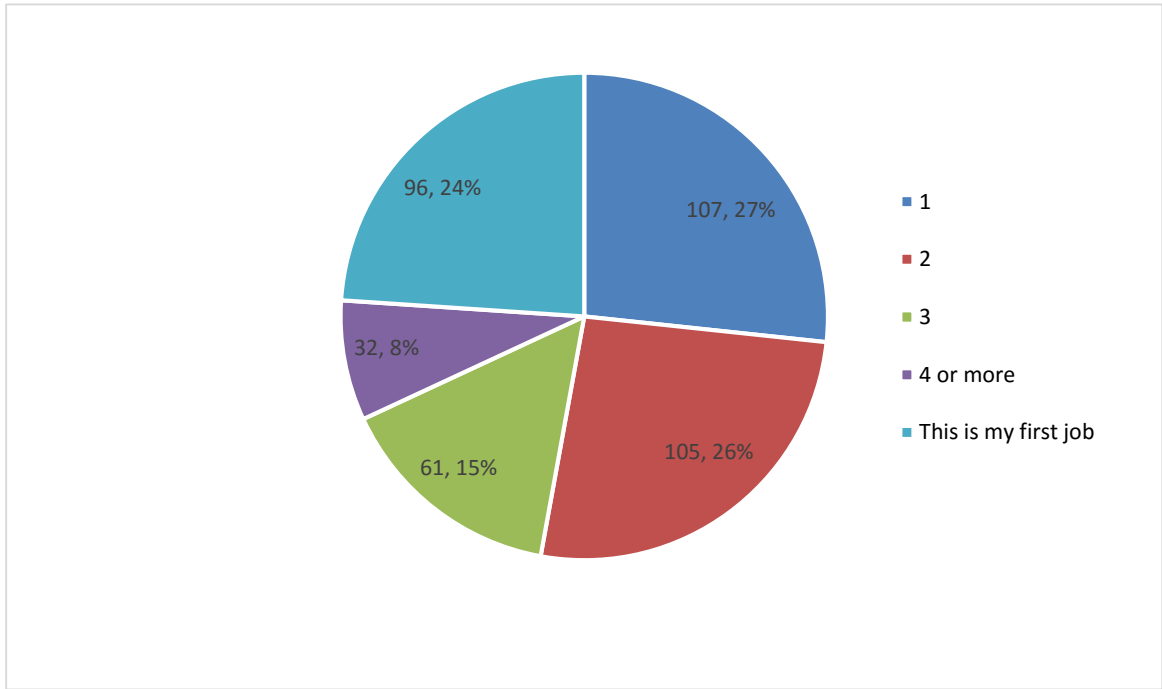


Figure 4.4: Previously worked number of organizations

Figure 4.5 shows the highest education level of each respondent of the sample. 254 out of 410 have bachelor's degrees and 125 have Master's degrees. Only four respondents have Doctorates while only five have professional qualifications. The respondents were asked to choose the highest qualification they had at the time of taking the survey. Hence, the category "professional qualifications" was meant to be for respondents who did not have a degree or diploma qualification. Only professional qualifications such as certifications in their respective field.

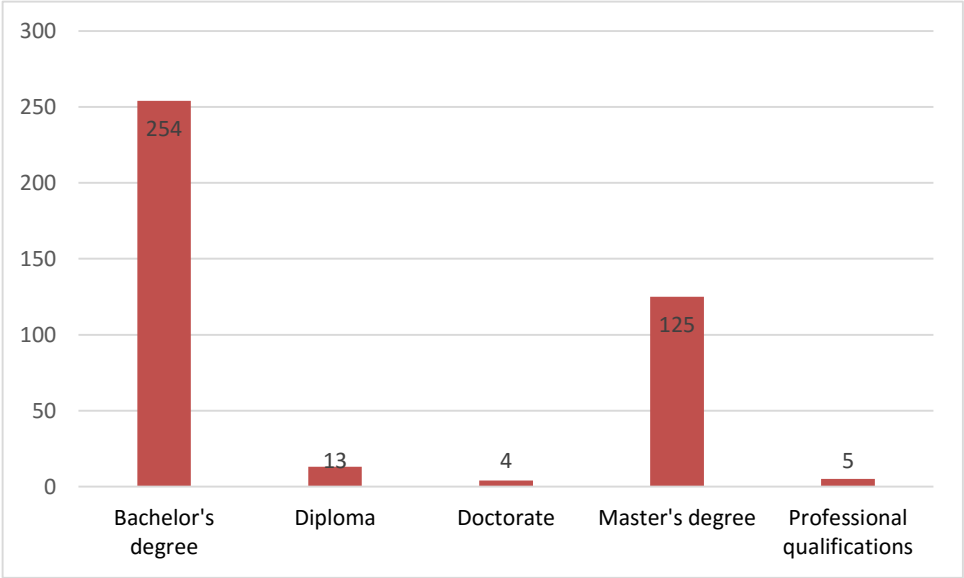


Figure 4.5: Highest education level

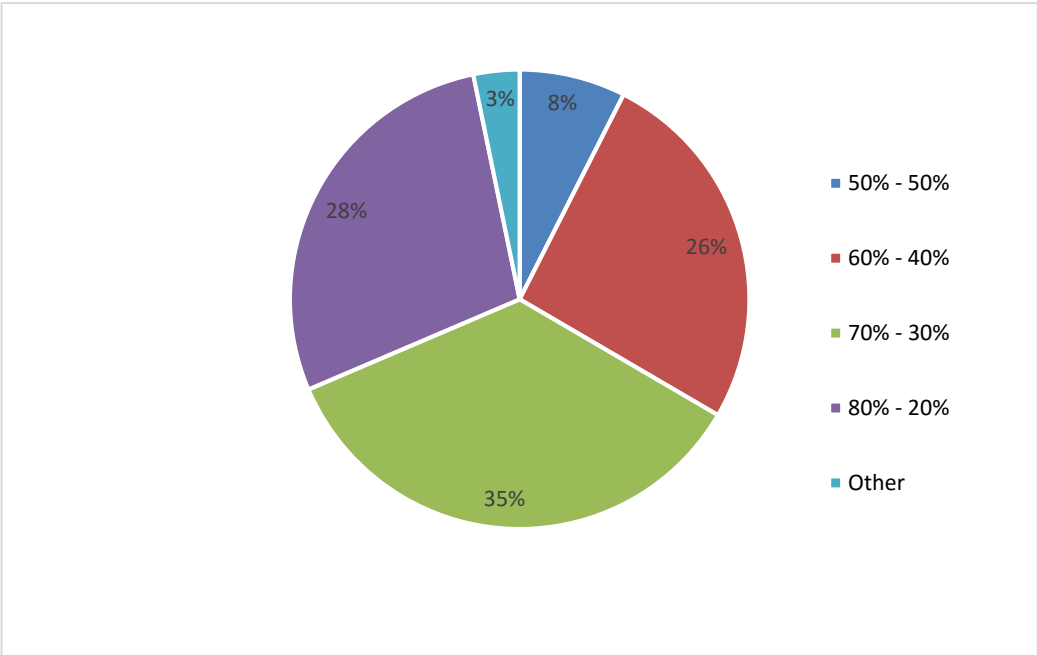


Figure 4.6: Male to female ratio

The male to female ratio of each respondent's IT department of their current organization is shown in Figure 4.6. 35% have said the ratio is 70% - 30%. 28% have said it's 80% -20% while 26% have said it's 60% - 40%. From the above results, it can be clearly identified that males account for the majority of the information technology roles in the industry.

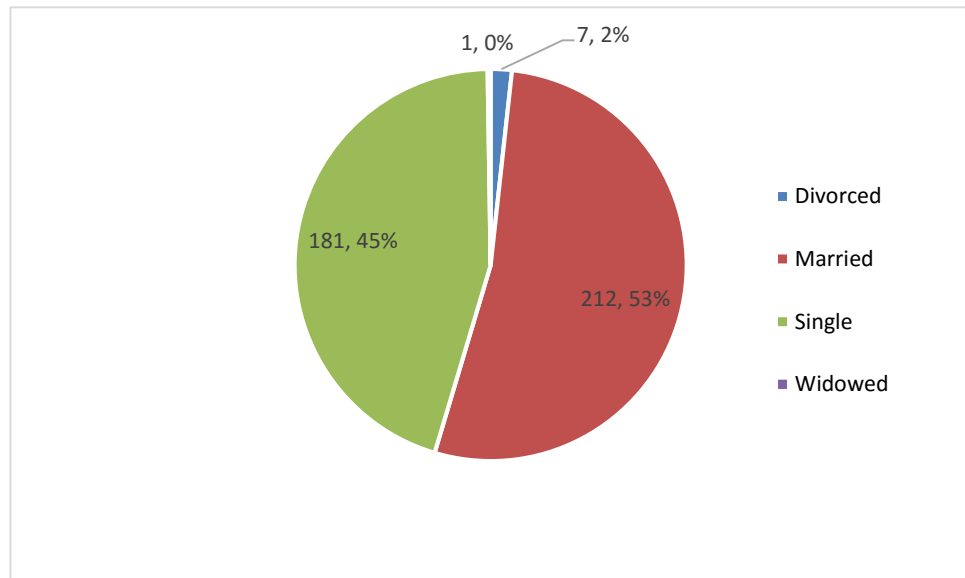


Figure 4.7: Marital status

Figure 4.7 shows the marital status of all the females in the sample. Out of the 401 respondents 212 are married while 181 are single. A handful of widowed and divorced females have also taken the survey.

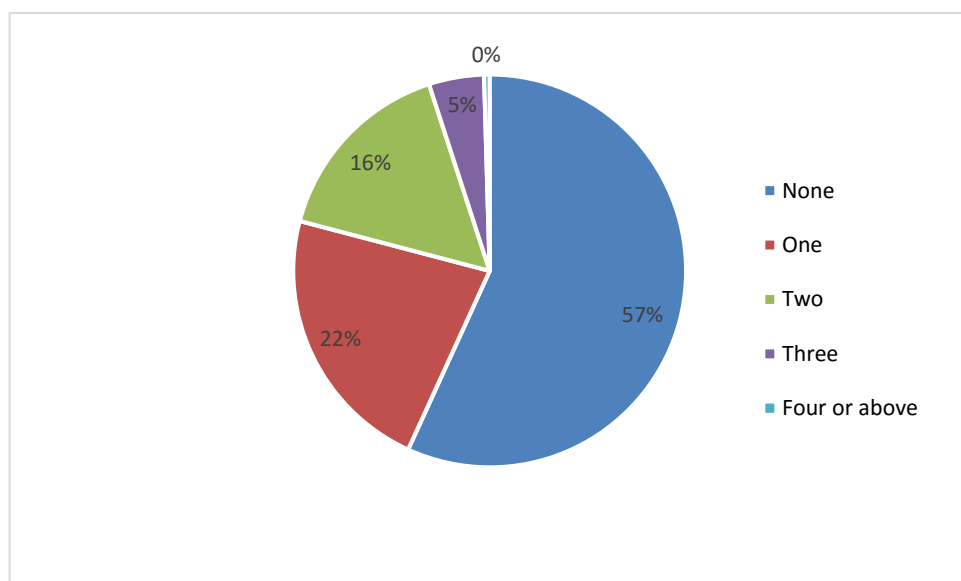


Figure 4.8: Number of children

Out of the sample, the number of females who are married, divorced or widowed are 220. Figure 4.8 shows the number of children they have. 57% do not have children while 22% have only one child. 16% have two children and the rest has three or more.

The data gathering was done only from females who have or are currently working in the Sri Lankan IT industry. Females who have just started their careers were also considered. The questions that were asked about education choices and career choices were based on the respondent females' choices they had taken earlier in life which led them to where they are now in their career.

4.3. Reliability Testing

Testing the reliability of gathered data is necessary before doing any type of an analysis. Cronbach alpha coefficient is the most used analysis method to test the reliability of data. According to Sekaran (2003), the desired threshold for Cronbach alpha coefficient is greater than 0.6. Values that are higher than this value are considered reliable. The test was carried out on all 401 respondents of the sample of the survey.

Consideration	Cronbach's Alpha Coefficient value
Behavioural factors	0.646
Educational factors	0.557
Psychological factors	0.520
Economic factors	0.439

Table 4.1: Cronbach's alpha coefficient values

Table 4.1 lists the Cronbach alpha coefficient values for behavioural, educational, psychological and economic factors of the data set. Value for behavioural factors which is 0.646 is above the threshold level. Values for educational, psychological and economic factors are 0.557, 0.520 and 0.439 respectively. All three of them are below the threshold level. So they had to be disregarded. Hence, only data under

behavioural factors could be considered reliable and only they were proceeded for further analysis.

4.4. Relationship with Factors Influencing Female Job Inequality in Sri Lankan IT Industry

SPSS software package was used for data analyzing part and regression analysis was used to calculate the values. Variables under behavioural factors which are culture (H₁), location (H₂), attitude (H₃), influence (H₄), maternity leave (H₅), family (H₆) and exhaustion (H₇) were further measured in hypothesis testing to check the significant relationship.

Hypothesis 1

Consideration	Significance level (p – value)
Culture	0.330

Table 4.2: Significance level of culture

As shown in Table 4.2, the level of significance is greater than the threshold value. The relationship is not significant. Therefore, the null hypothesis (H₁₀) is substantiated and the alternate hypothesis (H_{1A}) is rejected. Hence, there is no significant relationship between culture and female job inequality in Sri Lankan IT industry.

Hypothesis 2

Consideration	Significance level (p – value)
Location	0.786

Table 4.3: Significance level of location

Table 4.3 shows the significance level of location which is greater than the threshold value. The relationship is not significant. Therefore, the null hypothesis (H₂₀) is substantiated and the alternate hypothesis (H_{2A}) is rejected. Hence, there is no significant relationship between location and female job inequality in Sri Lankan IT industry.

Hypothesis 3

Consideration	Significance level (p – value)
Attitude	0.456

Table 4.4: Significance level of attitude

Table 4.4 shows the significance level of attitude. It is greater than the threshold value. The relationship is not significant. Therefore, the null hypothesis (H_{30}) is substantiated and the alternate hypothesis (H_{3A}) is rejected. Hence, there is no significant relationship between attitude and female job inequality in Sri Lankan IT industry.

Hypothesis 4

Consideration	Significance level (p – value)
Influence	0.849

Table 4.5: Significance level of influence

As shown in Table 4.5, since the level of significance is greater than the threshold value the relationship is not significant. Therefore, the null hypothesis (H_{40}) is substantiated and the alternate hypothesis (H_{4A}) is rejected. Hence, there is no significant relationship between influence and female job inequality in Sri Lankan IT industry.

Hypothesis 5

Consideration	Significance level (p – value)
Maternity Leave	0.082

Table 4.6: Significance level of maternity leave

As shown in Table 4.6, the significance level of maternity leave is greater than the threshold value which concludes that the relationship is not significant. Therefore, the null hypothesis (H_{50}) is substantiated and the alternate hypothesis (H_{5A}) is

rejected. Hence, there is no significant relationship between maternity leave and female job inequality in Sri Lankan IT industry.

Hypothesis 6

Consideration	Significance level (p – value)
Family	0.245

Table 4.7: Significance level of family

Table 4.7 shows the significance level of family. It is greater than the threshold value. The relationship is not significant. Therefore, the null hypothesis (H_{60}) is substantiated and the alternate hypothesis (H_{6A}) is rejected. Hence, there is no significant relationship between family and female job inequality in Sri Lankan IT industry.

Hypothesis 7

Consideration	Significance level (p – value)
Exhaustion	0.039

Table 4.8: Significance level of exhaustion

As shown in Table 4.8, the significance level of exhaustion is lower than the threshold value which concludes that the relationship is significant. Therefore, the null hypothesis (H_{70}) is rejected and the alternate hypothesis (H_{7A}) is substantiated. Hence, there is a significant relationship between exhaustion and female job inequality in Sri Lankan IT industry. This means that the physical and mental exhaustion female employees go through to have their work/life balance is a cause of gender inequality.

As mentioned in section 4.3, all 19 hypotheses were tested for reliability. Only 7 hypothesis were above the threshold value of 0.6. Rest were below the threshold value which were proven to be unreliable. Hence, only those 7 hypotheses which were reliable were further considered to test the hypothesis testing in analysis.

4.5. Summary

The chapter presented details on demographic analysis and analysis on the relationship between the factors and female job inequality in Sri Lankan IT industry. Only data for behavioural factors were found to be reliable while data for educational, psychological and economic were found to be unreliable. The seven variables that belonged in behavioural factors were tested for significant relationships between them and female job inequality in Sri Lankan IT industry. Out of those, only exhaustion was found to be having a significant relationship. Rest were found to have no significant relationship with female job inequality in Sri Lankan IT industry.

5. CONCLUSION AND RECOMMENDATIONS

5.1. Conclusion

The main purpose of this study was to identify the factors which are influencing female job inequality in Sri Lankan IT industry. The research was explicitly focused on the perspective of female employees in the IT industry. First, the gender inequality situation in Sri Lankan IT industry was identified. Then it was carried on to find the factors which are causing the same around the world. It was clearly found out that there is gender inequality happening in Sri Lankan IT industry. From literature sources a set of factors were found which showed that is causing gender inequality in the IT industry around the globe. Depending on those factors, a comprehensive questionnaire was then developed as the research instrument. It was shared among the females who are currently or who have been previously employed in the IT industry. After the data collection, missing values were removed and a data reliability test was done. Data sets that had Cronbach's alpha coefficient value greater than 0.6 were accepted as reliable. Unreliable data sets were disregarded and reliable data were further analyzed using regression analysis.

Behavioural factor data set was found to be reliable. Educational, psychological and economic factor sets were identified as unreliable as they did not have the Cronbach's alpha values greater than 0.6. Based on the analysis, out of 7 hypotheses tested, only exhaustion (H_7) was found to have a significant relationship with female job inequality in Sri Lankan IT industry. Culture, location, attitude, influence, maternity leave and family were not found to have any significant relationship.

Moreover, when looking at the results found out from demographic data analysis, few points could be identified. When considering the age category, most were from a younger female crowd aged 25- 29 years. The reason for this could be because this crowd was more approachable during the distribution of the survey questionnaire. Almost half of the survey respondents are employed in software development and only a handful are employed in security, database, system and network administration. More than half of the respondents have bachelor's degrees in their respective fields. It can be identified that a lot of females are well educated in IT in

Sri Lankan education system. The percentage of males in the respondents IT departments is very high. Most of the results have occurred in more than 60% male dominated environments. Hence, it can be concluded that there might be reasons behind those types of choices by the organizations. The marital status has taken a half-half scenario where almost half of the respondents were single while the other half was not. Out of the married/divorced or widowed population, more than half of them, do not have any children.

5.2. Research Limitations

The sample population was biased on gender as only females were considered, age as there was a higher participation from the younger crowd, field of work as most were from software development and marital status as most respondents were single. Ranges in salary or wages were not considered. The study only targeted the female perspective not the male perspective. Thus, there might have been different opinions. Only a survey questionnaire was used for the study. More accurate results could have been achieved if an interview + survey approach was taken.

5.3. Future Work

An interview approach would have given more accurate insights. Then the results will not be biased. An extended research could be done to identify the reasons why the male ratio in the IT departments of the respondents' organizations was high. Also, more research could be done to find out why only fewer females are employed in database, network and system administration side compared to software development side in IT.

REFERENCES

- Jayalath, J., Damayanthi, W., Ganepola, M., Gunathilaka, C., Pathiranage, S., & Weerakoon, A. (2010). *A Study on Changing Patterns of ICT Related Occupations in Labour Market of Sri Lanka*. Tertiary and Vocational Education Commission.
- (2020, September 16). Retrieved from The Information and Communication Technology Agency of Sri Lanka: <https://www.icta.lk/leadership/>
- (2016). *Annual Employment Survey*. Department of Labour, Ministry of Labour and Trade Union Relations.
- Bartlett, J. E., Higgins, C. C., & Kotrlik, J. W. (2001). Organizational Research: Determining Appropriate Sample Size in Survey Research. *Information Technology, Learning, and Performance Journal*, 19(01), 43 - 50.
- Cheryan, S., Master, A., & Meltzoff, A. N. (2015). Cultural stereotypes as gatekeepers: increasing girls' interest in computer science and engineering by diversifying stereotypes. *Frontiers in Psychology*, 6.
- Cochran, W. G. (1977). *Sampling Techniques* (third edition ed.). New York: John Wiley & Sons.
- Dasgupta, N., Scircle, M., & Hunsinger, M. (2015, April 21). Female peers in small work groups enhance women's motivation, verbal participation, and career aspirations in engineering. *112*(16), 4988-4993. Retrieved from www.pnas.org/cgi/doi/10.1073/pnas.1422822112
- Dhar-Bhattacharjee, S., & Richardson, H. (2017). A tour of India in one workplace: investigating complex and gendered relations in IT. *Information Technology & People*, 31(2), 578-594. doi:doi.org/10.1108/ITP-08-2015-0198
- DiPrete, T., & Alon, S. (2015). Gender Differences in the Formation of a Field of Study Choice Set. *Sociol Sci.*, 50 - 81. doi:10.15195/v2.a5
- Dutta Gupta, S., Raychaudhuri, A., & Haldar, S. (2015). Information technology sector in India and gender inclusivity. *Gender in Management: An International Journal*, 30(2), 94-108. doi:10.1108/GM-04-2013-0046
- Gender inequality*. (n.d.). Retrieved February 27 , 2018, from Wikipedia: The Free Encyclopedia: https://en.wikipedia.org/wiki/Gender_inequality
- Georgiadou, E., Abu-Hassan, N., Siakas, K. V., Wang, X., Ross, M., & Anandan, P. A. (2009). Women's ICT career choices: four cross-cultural case studies.

Multicultural Education & Technology Journal, 3(4), 279-289.
doi:10.1108/17504970911004282

Gunawardane, D. S. (2013). Gender Inequality in Sri Lanka. *Felicitations Volume of Senior Professor Prema Podimenike, Department of Economics, University of Kelaniya*, 64-81.

Gupta, N. (2017). Gender inequality in the work environment: a study of private research organizations in India. *Equality, Diversity and Inclusion: An International Journal*, 36(3), 255-276. doi:10.1108/EDI-04-2016-0029

Hassan Al Marzouqi, A., & Forster, N. (2011). An exploratory study of the under-representation of Emirate women in the United Arab Emirates' information technology sector. *Equality, Diversity and Inclusion: An International Journal*, 30(7), 544-562. doi:10.1108/02610151111167016

Hunt, J. (2012, September). Why Do Women Leave Science and Engineering? Bonn, Germany: Institute for the Study of Labor (IZA).

ICTA, I. a. (2013). *National ICT Workforce Survey*. Information and Communication Technology Agency of Sri Lanka.

Jayaweera, S., Sanmugam, T., & Wanasundara, L. (2006). *Information and Communication Technologies and Gender in Sri Lanka*. International Development Research Centre (IDRC), Canada.

(2016). *Labour Force Survey - Annual Report*. Department of Census and Statistics, Ministry of National Policies and Economic Affairs.

(2017). *Labour Force Survey - Annual Report*. Department of Census and Statistics, Ministry of National Policies and Economic Affairs.

(2018). *Labour Force Survey - Annual Report*. Department of Census and Statistics, Ministry of National Policies and Economic Affairs.

Nations, U. (2013, November). Chapter 5 - Gender Inequality. *Humanity Divided: Confronting Inequality in Developing Countries*, 162 - 193. Retrieved from www.undp.org/poverty

Parziale, A. (2008). Gender Inequality and Discrimination. In E. R. Kolb, *Encyclopedia of Business Ethics and Society* (pp. 977-981). SAGE Publications, Inc.

Sekaran, U. (2003). *Research Methods for Business - A Skill Building Approach*, Fourth Edition. John Wiley & Sons, Inc.

Smith, L. (2013). Working hard with gender: Gendered labour for women in male dominated occupations of manual trades and information technology (IT). *Equality, Diversity and Inclusion: An International Journal*, 32(6), 592-603. doi:10.1108/EDI-12-2012-0116

(2017). *Sri Lanka University Statistics 2017*. University Grants Commission - Sri Lanka.

Trauth, E. M. (2002). Odd girl out: an individual differences perspective on women in the IT profession. *Information Technology & People*, 15(2), 98-118. doi:10.1108/09593840210430552

Appendix A: Output of Graduates by Higher Educational Institution and Major Academic Programme: 2016 – 2017 (Sri Lanka University Statistics, 2017)

UNIVERSITY/ HEI ⁽²⁾	Year ⁽¹⁾	Faculty/Academic Programme																Computer Science/IT		Allied Health Sciences		Science		Indigenous Medicine		Total			
		Arts		Management & Commerce		Law		Medicine		Dental Science		Veterinary Science		Agriculture		Engineering												Architecture & Quantity Surveying	
		F	T	F	T	F	T	F	T	F	T	F	T	F	T	F	T	F	T	F	T	F	T						
University of Colombo ⁽³⁾	2016	783	928	295	480	250	304	89	198													11	22	216	408			1644	2340
	2017	741	899		⁽⁴⁾ 215	250	102	203														23	35	216	413			1297	1800
University of Peradeniya	2016	639	825	111	188	49	60	95	171	56	91	47	73	118	189	104	461			33	52	107	⁽⁵⁾ 157	216	383			1575	2650
	2017	600	734	117	163	45	51	111	207	101	⁽⁶⁾ 148	53	79	110	197	92	396			52	66	89	140	173	347			1543	2528
University of Sri Jayawardenepura	2016	552	677	1340	2319			91	152										50	110	42	55	311	511			2386	3824	
	2017	716	885	455	1105			97	152										29	58	61	72	312	553			1670	2825	
University of Kelaniya	2016	909	1094	293	465			100	162										21	48	40	46	187	331			1550	2146	
	2017	1018	1248	307	533			110	168										33	58	44	52	222	372			1734	2431	
University of Moratuwa	2016															195	823	201	⁽⁷⁾ 332	77	188							473	1343
	2017															210	889	195	355	124	237							529	1481
University of Jaffna ⁽³⁾	2016	441	546	216	377	44	50	43	99					25	49				34	55	20	33	130	218	20	32	973	1459	
	2017	533	676	251	454	52	60	45	95					26	54	3	⁽⁸⁾ 31		43	65	37	55	103	191	21	32	1114	1713	
University of Ruhuna ⁽⁹⁾	2016	410	499	163	311			63	122					120	202	38	202		9	35	61	⁽¹⁰⁾ 87	144	257			1008	1715	
	2017	383	464	145	195			77	128					105	157	45	246		2	⁽¹¹⁾ 4	81	102	50	⁽¹¹⁾ 76			888	1372	
Eastern University ⁽³⁾	2016	330	388	110	179			33	49					35	60						1	⁽¹¹⁾ 1	11	⁽¹¹⁾ 32	5	9	525	718	
	2017	57	72	58	89			36	50												15	22	48	86	10	12	224	331	
South Eastern University	2016	437	554	84	148														64	84			72	111			657	897	
	2017	424	523	110	166														56	77			42	70			632	836	
Rajarata University	2016	362	432	153	291			110	182					41	68				50	68			66	94			782	1135	
	2017	285	336	210	357			121	173					55	74				40	55			90	127			801	1122	
Sabaragamuwa University	2016	148	180	175	287									47	67				36	81			64	154			470	769	
	2017	188	214	182	302									56	85				13	33			90	197			529	831	
Wayamba University	2016			203	315									64	98								91	190			358	603	
	2017			270	430									85	116								113	182			468	728	
Uva Wellassa University	2016			68	94									97	127				58	99			55	90			278	410	
	2017				⁽⁴⁾										⁽⁴⁾					⁽⁴⁾				⁽⁴⁾					
University of Visual & Performing Arts	2016	400	529																								400	529	
	2017	363	481																								363	481	
Institute of Indigenous Medicine	2016																									51	62	51	62
	2017																								24	⁽¹¹⁾ 31	24	31	
Gampaha Wickremaratchi Ayurveda Institute	2016																									54	66	54	66
	2017																								75	⁽⁶⁾ 111	75	111	
Insitute of Human Resource Advancement	2016	61	124																								61	124	
	2017	51	126																								51	126	
University of Colombo School of Computing	2016																		98	236							98	236	
	2017																		64	193							64	193	
Total	2016	5625	6963	3211	5454	343	414	624	1135	56	91	47	73	549	869	337	1486	201	332	530	1056	282	401	1563	2779	130	169	13498	21222
	2017	5458	6780	2105	3794	312	361	699	1176	101	148	53	79	437	683	350	1562	195	355	456	846	350	478	1459	2614	130	186	12105	19062
		F - Female T - Total																											

Table 0.1: Output of Graduates by Higher Educational Institution and Major Academic Programme: 2016 – 2017

Appendix B: Survey Questionnaire

Survey on Factors Influencing Female Job Inequality in Sri Lankan IT Industry

1. Age
 - ☐ 40 years and above
 - ☐ 35-39 years
 - ☐ 30-34 years
 - ☐ 25-29 years
 - ☐ 20-24 years

2. In which of the following IT field do you work/have you worked?
 - ☐ Software Development
 - ☐ Quality Assurance
 - ☐ Business Analysis
 - ☐ Project Management
 - ☐ Network Administration
 - ☐ Systems Administration
 - ☐ Database Administration
 - ☐ Security
 - ☐ Other (Please indicate)

3. How many years of experience do you have in the IT industry?
 - ☐ More than 10 years
 - ☐ 7 - 10 years
 - ☐ 5-7 years
 - ☐ 3-5 years
 - ☐ Below 3 years

4. Previously, at how many organizations have you worked?
- ☐ 1
 - ☐ 2
 - ☐ 3
 - ☐ 4 or more
 - ☐ This is my first job
5. What is your highest education level?
- ☐ Diploma
 - ☐ Bachelor's degree
 - ☐ Master's degree
 - ☐ Doctorate
 - ☐ Professional qualifications
6. What is the male to female ratio at your organization's IT department?
- ☐ 80% - 20%
 - ☐ 70% - 30%
 - ☐ 60% - 40%
 - ☐ 50% - 50%
 - ☐ Other (Please indicate)
7. Marital Status
- ☐ Single
 - ☐ Married
 - ☐ Widowed
 - ☐ Divorced
8. If married/divorced/widowed, how many children do you have?
- ☐ none
 - ☐ 1
 - ☐ 2
 - ☐ 3
 - ☐ 4 or above

How would you rate following statements

Strongly Agree → Agree → Neutral → Disagree → Strongly Disagree

9. I have left organization/s because I faced a gender inequality situation
10. My culture has/had an impact towards my behavior at my workplace
11. The location of the workplace should be a convenient place for me
12. I tend to get exhausted physically and mentally because I'm unable to have my work/life balance
13. Positive and negative influences of individuals and cultures have affected my behavior in my career
14. My attitude has positively helped me to work with my coworkers
15. After coming back from maternity leave I was treated differently at work
 - Yes
 - No
 - Somewhat
 - Not relevant
16. I have difficulties in work/life balance with the following (choose all that apply)
 - ☐ Husband
 - ☐ Parents/in-laws
 - ☐ Children
 - ☐ Other
 - ☐ None of the above

How would you rate following statements

17. When I chose my field of study, I considered about the fact that I'm a female and choosing a field a female can do
18. I chose my career as per my wish
19. My decision of career choice was affected by others (parents, friends, peers etc.)

How would you rate your job and organization (compared with your male coworkers) considering below statements

- 20. I experience discrimination when working with my male coworkers
- 21. I don't experience discrimination when working with my male coworkers
- 22. I am not treated equally as my male coworkers are
- 23. My work is not appreciated equally as my male coworkers' work
- 24. I am well motivated to do my job as my male coworkers are
- 25. I am equally and fairly mentored as my male coworkers are
- 26. I have enough support from my male coworkers when doing my job
- 27. I am more pressurized than my male coworkers while doing my job
- 28. I have difficulty in maintaining persistence at work

Rate the following factors considering your economy

- 29. I am paid equally as my male coworkers in same grades having same designations
- 30. For the same level of performance, I am equally rewarded as my male coworkers are
- 31. I experience inequality at my workplace but I am holding on to it because I have economic reasons
- 32. There are government policies established to eliminate gender inequality in Sri Lanka
- 33. I am aware of the government regulations about gender inequality in Sri Lanka
- 34. Political personnel/parties have shown their interest to mitigate situations of gender inequality in Sri Lanka