MODELLING OF TRADITIONAL FAMILY PLANNING USAGE BY WOMEN IN SRI LANKA

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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.

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Abstract

Family planning plays a crucial role in enhancing the health of the mother and the child. Contraceptives are used by most women in the reproductive age span (15- 49 years). Sri Lanka has named as one of the countries with high usage of traditional family planning (TFP) methods than the other Asian countries. However, the reasons for that were not been investigated. Therefore, this study is carried out to identify the significant factors influencing on usage of traditional family planning by using data from Sri Lanka Demographic and Health Survey in 2016 and the sample size is 10835. The modern family planning methods are used by 83.7% women compared to the traditional family planning methods. Among the traditional family planning users, rhythm method is more popular (57.1%) than the withdrawal method (34.9%). The highest percentage of both the traditional and modern family planning methods are used by the women of age between 31-42 years. A binary logistic regression model was developed to capture the factors which influence on the use of traditional family planning methods. The model was invariant on the type of selection method and selection criteria. The overall predictive power is 82.9%. The knowledge on family planning, having advice from public health midwives, attendance to well women clinics, religion, ethnicity, decision to use Family Planning, husband's occupation, women's age, women's occupation, women's education level, number of children, and wealth quantile are significantly associated factors with the usage of traditional family planning. The odds of the usage of TFP among the women having no children and women having 1 or 2 children are respectively 1.4 and 4.0 times higher than the women having 3 or more children. The factors identified are geared towards providing a contemporary, robust evidence base, therefore the key population groups in need of contraceptive services can be targeted more effectively and efficiently. Organizing counselling programmes and promotions on family planning and conduct media awareness programmes to avoid some myths on modern contraceptives can be suggested.

Keywords: *Binary Logistic Model, Odd ratio, Traditional Family Planning Methods, Traditional Family Planning Users, Women in reproductive age span*

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AIDS	-	Acquired Immune Deficiency Syndrome
A/L	-	Advanced Level
CPR	-	Contraceptive Prevalence Rate
FPA	-	Family Planning Association
FP	-	Family Planning
GCE	-	General Certificate of Education
HIV	-	Human Immunodeficiency Virus
IUD	-	Intrauterine Device
LAM	-	Lactational Amenorrhea Method
MFP	-	Modern Family Planning
O/L	-	Ordinary Level
OR	-	Odds Ratio
PHM	-	Public Health Midwife
SD	-	Standard Deviation
SLDHS	-	Sri Lanka Demographic and Health Survey
TFP	-	Traditional Family Planning
TFR	-	Total Fertility Rate
UN	-	United Nations
UNFPA	-	United Nations Population Fund
WHO	-	World Health Organization

CHAPTER 1

INTRODUCTION

1.1 Background

Family planning in global context plays a crucial role in enhancing the health of both the mother and the child. Growing demands for contraceptive utilization from both genders is to limit, space, or delay the number of births and size of the family. Different contraceptive methods are used by the most of women in the reproductive age span (15-49 years) who are either married or in a union, in most parts of the globe (United Nations, 2017). According to the recent statistics published by the United Nations (UN) 63% of women have been using some form of a family planning method. Contraceptive usage was more than 70% in Latin America and the Caribbean, Northern America and Europe, whilst being less than 25% in the Middle and Western African regions (United Nations, 2017).

In 1965 a national programme for family planning was introduced in Sri Lanka and later it was integrated to the maternal and child health activities of the Ministry of Health. With the establishment of the Family Health Bureau in 1968 and the implementation of family planning services and training, Sri Lanka became one of the best states in South Asia in implementing family planning practices. Notably, Sri Lanka has been recognized as one of the nations with larger proportions (nearly 21%) of people depending on traditional family planning methods rather than the modern family planning approaches (Ministry of Health, 2019).

1.2 Family Planning

Family planning can be defined as ‘the ability of individuals and couples to anticipate and attain their favored number of births and the spacing of the births and timing of their births’, according to the World Health Organization -WHO (WHO, 2020). In other words, family planning is voluntary, and various method of contraception are available and can be categorized to self-requirements with a series of methods that are suitable to all and effective if used properly (Shaw, 2010).

According to the United Nations Population Fund (UNFPA, 2020), contraceptives could be defined as 'the information and approaches that allow couples or individuals to choose when to have babies. Further UNFPA elaborates the meaning of family planning as the utilization and explained it as having information regarding how to make pregnancies possible when necessary and also about treatment for infertility. In general, the term 'family planning' is used in different technical jargons such as 'birth controls', 'contraceptives' etc. Mainly the use of specific contraceptive methods varies widely across the world. Basically, contraceptive forms can be divided into two groups as modern and traditional family planning methods (UN, 2019).

1.3 Traditional Family Planning Methods

Traditional methods of family planning include the rhythm method and withdrawal method. Other traditional methods typically include long-term abstinence and prolonged breastfeeding (Population Reference Bureau, 2019). Traditional methods can be termed as natural methods and the effectiveness of the method depends on the user (WHO, 2007; Ethiopian Federal Ministry of Health, 2015). According to the SLDHS report 2016, withdrawal and rhythm methods have been considered often as the traditional methods used in Sri Lanka.

1.3.1 Withdrawal Method

The withdrawal method can be defined as, 'the male partner removing his penis from the female partner's vagina and ejaculating it on outside, it preventing his semen from reaching her outward genitalia' (WHO, 2017). The idea behind adopting this method is to prevent sperm from entering a woman's reproductive system through her genitalia. This method can be termed as coitus interruption or pulling out method. According to experts, the effectiveness of this method is very less. This method can be used as a primary level method. Advantages of this method are not necessitating the prerequisite supplies of any contraceptives prior to coitus and no clinic or pharmacy visits for birth control purposes (WHO, 2007).

1.3.2 Rhythm Method

Rhythm method is also known as calendar method and it is explained as falling within the category of natural contraceptive method (WHO, 2020). According to Ethiopian Federal Ministry of Health in 2015, the calendar method can be defined as a numerical-based approach that previous menstrual cycles are counted to predict the starting and the finishing fertile day in upcoming months of menstrual cycles. This technique needs a proper idea of the fertile and infertile stages of the female's menstrual process.

Basically, women can screen their pattern of menstrual cycle more than 6 months and understand their fertile period before it occurs. Mainly women have to deduct 18 from shortest menstrual cycle length to have the estimated starting fertile day and subtracts 11 from longest menstrual cycle length to have the estimated finishing fertile day from recorded 6-month pattern. Therefore, the couple can prevent pregnancies by avoiding sexual intercourse during the first and last calculated fertile days. (WHO, 2020).

1.4 Modern Family Planning Methods

Almost all modern contraceptive methods have been developed to tolerate the couples to act on their natural requirements and reduce the risks of pregnancy. Modern family planning methods can be defined as scientific advances intended to overcome biology. With regard to this concept, modern approaches must provide couples to have their sexual activities at any chosen period without risk of getting pregnant (Hubacher and Trussell, 2015).

With the current development of science and technology, more than fifteen modern contraceptive methods can be identified. Basically, modern contraceptives can be divided into two categories as temporary methods and permanent methods (Family Planning Association, 2020). Gender based sterilization can be included as permanent methods and pill, intrauterine device (IUD), injectables, implants, condoms etc., can be categorized as temporary methods. Number of other modern methods typically include female condom, lactational amenorrhea method (LAM),

diaphragm and foam or jelly. Table 1.1 describes the definitions, functions of modern family planning methods and their rate of success (Population Reference Bureau, 2019; Family Planning Association, 2020).

Table 1.1: The Definitions, Functions and Success Rate of Modern Family Planning Methods

Family planning method	**Definition**	**Function**
Sterilization - Female	Permanent method for females those who does not need children or more children. Also termed as tubal sterilization and tubectomy.	Permanent technique to block the fallopian tubes. Rate of success: 99%
Sterilization - Male	Permanent method for males who does not need children or more children. Also termed as vasectomy and male surgical contraception.	Permanent technique to block the tubes that bring sperm from the testicles. Rate of success: 99%
Pills	Tablets that comprise lower doses of a progestin hormone.	Block sperm and egg from meeting and prevents ovulation. Rate of success: 99% (If used correctly)

Table 1.1 Continued

Intrauterine device (IUD)	Minor T-shaped stretchy plastic tool containing copper sleeves that implanted into the uterus.	Gradually releases progestin every day. Rate of success: 99%
Injectables	The each injectables contain a progestin like the natural female hormone of progesterone.	Inject monthly into the muscle, release estrogen and progestogen to the body. Rate of success: 99%
Implants	Slight plastic sticks or pills that are positioned under the women's skin of the arm that are the size of a matchstick.	Rods or capsules release progesterone to the body. Rate of success: 99%
Male condom	Coverings, that fit over a erect male's penis. It helps to protect from sexually transmitted infections and HIV.	Forms a barrier to prevent sperm and egg from meeting. Rate of success: 98% (If used correctly)
Female condom	Linings, that fix lightly inside a female's vagina, that made from smoothy plastic cover.	It makes a barrier to meet sperm and egg. Rate of success: 90% (If used correctly)

Table 1.1 Continued

Emergency pills	Pills are made to avide pregnancies up to 3-5 days after unprotected sex. Most commonly termed as Postinor -1 and Postinor 2	Delay's ovulation.
Lactational amenorrhea method (LAM)	Temporary method for mothers who delivered a baby that monthly menstruation has not started; It requires full day breastfeeding for an infant until 6 months.	Delaying the release of fertile eggs from the ovaries. Rate of success: 98% (If used correctly)

Source: WHO, 2020; Ethiopian Federal Ministry of Health, 2015

According to the Sri Lanka Demographic and Health Survey (SLDHS) 2016, 10 modern contraceptive methods that mentioned above as, pills, injectables, implants, IUD, male condom, female condom, male and female sterilization, lactational amenorrhea method (LAM) and emergency pills have been considered within the analysis process (SLDHS, 2016).

1.5 History of Family Planning Movement

Family planning movement spans over 100 years of history within global contexts. However, the family planning or birth control concept is not a newly identified phenomenon in the world. Family planning concepts were initially discussed by ancient Greek philosophers such as Aristotle and Plato before the arrival of modern health systems (Peel and Potts, 1970). In the ancient time family planning was used as a method of controlling population.

1.5.1 Period of 1916 - 1962

As the first stage of the current family planning movement, pioneers of this movement Margaret Sanger and Marie Stopes began discussing family planning in the beginning of the 20th century (Sinding, 2008). Especially, family planning concept was discussed to ensure women's empowerment, avoid unwanted pregnancies, eliminate social discriminations and to improve women's well-being.

Therefore, as the starting point of the modern family planning movement Sanger started the first family planning clinic in the United States in 1916. After her continuous commitment for the family planning sector, Sanger established the League of American Birth Control in 1921, which after named as the America's Planned Parenthood Federation in 1952 in City of New York.

After that, with the establishment of the International Planned Parenthood Federation, policy relevant research programs were expanded to understand the underlying dynamics of demographic changes in the world. Within the period of 1952 to mid-1960s, the International Planned Parenthood Federation, gradually expanded their number of members specifically in many developing countries. As the result of that, family planning associations belongs to the nongovernmental bodies were established the higher demand for family planning facilities, mainly with the involvement of females, and the political tolerability of family planning among the majority of women in those countries (Sinding, 2008).

At the end of the 1960s significant funding agencies for family planning became available with international development interventions. The first funding agency was established by the Swedish administration, which guided early family planning efforts in India, Pakistan and Sri Lanka, in 1962. However, at the first stage, implementation of family planning in Asian region was not successful. Especially it embedded cultural practices, as well as the economic and emotional value of children to families with poverty, were the basic reasons for failure of the programme.

1.5.2 Period of 1970 - 1980

As a momentous of family planning drive, the United Nations, deeply expressed their concern whether population planning programs were needed and about how population related policies should be enclosed in 1974 with the World Population Conference in Bucharest. After that numerous policy makers actively contributed to popularizing the concept of family planning. Significantly, the conference held in Bucharest, made an excellent motivation for family planning in 20 years of

period during which a reproductive health revolution arose in most parts of the globe except the Sub-Saharan African region (Brown, 2008). As a notable point, success of family planning interventions began in East Asia in the 1960s and spread quickly through larger part of the other developing countries between the period of 1970s - 1980s.

1.5.3 Period of 1994 - 2000

As a significant turning point of the family planning movement, the 1994 International Conference on Population and Development held in Cairo built up much more attention on absence of large-scale perseverance on the issues on growth of population and an intense micro-level alert with sexual and reproductive health and rights for a complete reformulation of global population programs. This conference clearly addressed the importance of measures on reproductive health, including birth controls, that would accommodate to women's overall reproductive health necessities, as well as a number of economic and social policy changes were intended to empower the women in globally (Sinding, 2008).

In the family planning movement, Asian countries are named as leaders of the establishment of birth control programs. The main aim for that is family planning programs conducted in East and South-East Asia lead to decline in fertility levels remarkably. Notably, the total fertility rate (TFR) in Asian region dropped as low as 2 and 3 during the year 2000 thanks to the family planning programs (Guest, 2003). Remarkably, national family planning programs in most of the Asian countries contributed positively to this phenomenon. Specially, international funding agencies funded for family planning programs in most of the South Asian countries and as a result of that, in early 1960s most of the Asian regions had started to implement family planning programs integrated to their national development strategies.

1.6 History of Family Planning Movement in Sri Lanka

In the case of Sri Lanka as a South Asian country, interventions in family planning went early independent of the country. First family planning clinic had been formulated in Colombo with the collaboration of the Ceylon Social Service League in 1937 by Dr. Mary Rutnam. After the establishment of International Planned Parenthood Federation in United States of America, federation has funded in 1958 to start the Ceylon Family Planning Association (FPA) in Sri Lanka and it established 23 clinics in Colombo as well as in other urban areas around the country to provide trainings and contraceptive supplies to both government and private doctors those who willing to provide services at their institutions (Wright, 2008).

However, family planning became a national programme in Sri Lanka in 1965 under the aegis of the Ministry of Health. In 1968 with the financial support from the Swedish Government, the Family Health Bureau was formulated to implement family planning services and training in Sri Lanka. In 1974 with the coordination of UNFPA and Ministry of Plan Implementation of Sri Lanka a number of projects were conducted to improve family planning facilities available to all the sections of the population in the country (Ministry of Health, 2019; Population Reference Bureau, 2012). With the successive implementation of family planning services in Sri Lanka, contraceptive prevalence rate (CPR) rose up to 61.7% in 1987. Further it increased up to 66.1% in 1993 (Ministry of Health, 2019; SLDHS, 1993). Strangely, with the effective family planning program in the country, Sri Lanka became a signatory partner for the global concept of improving reproductive health at the International Conference held in Cairo in 1994.

1.7 Global Family Planning Trends

According to the United Nations World Fertility and Family Planning Highlights 2020, globally, 50 per cent of women in the reproductive age (15-49 years) are using any kind of a family planning method. It shows an increasing trend where usage of family planning was recorded in 1990 as 42% and it was recorded in 2019 as 48.5% globally (Table 1.2). As a notable point, almost in all regions an increase

of family planning usage can be seen within the period of 1990 to 2019. Especially when considering the world prevalence rate of family planning in 2019, family planning usage among women in reproductive age was recorded as less than 20 per cent in 23 countries and more than 55 per cent in 37 countries (UN, 2019).

Table 1.2: Family Planning Usage Throughout the World and Based on Regions from 1990 - 2030

Region	Family Planning Usage (%)		
	1990	2019	2030
World	42.1	48.5	49.0
Sub Saharan Africa	13.2	28.5	34.1
Central and Southern Asia	30.2	41.8	44.8
Eastern and South-Eastern Asia	50.7	60.0	59.1
Latin America and the Caribbean	39.8	58.0	60.4
Oceania	20.4	28.0	30.7
Australia and New Zealand	56.4	57.7	58.5
Europe and Northern America	57.1	58.2	59.0

Source: United Nations, 2019

At the end of the year 2019, 1.9 billion women can be observed as belonging within the reproductive age span living in the world. Out of that, 842 million women are using modern methods of family planning while 80 million of women are using traditional family planning methods. And also, 190 million of women who need to avoid births are not using any contraceptive methods currently (UN, 2019).

According to the UN in 2019, around the world, the majority of women (24%) are currently using the family planning method known as female sterilization. Three other methods have more than 15% of users (100 million users) followed by male condoms (21%), IUD (17%) and the pills (16%) (Table 1.3).

Table 1.3: Worldwide Numbers of Women in Reproductive Age Span that Using Various Contraceptive Methods, 2019

Method	Number of Users Globally (Millions)	Percentage (%)
Female sterilization	219	24
Male condom	189	21
IUD (Intrauterine device)	159	17
Pill	151	16
Injectable	74	08
Withdrawal	47	05
Rhythm	29	03
Implant	23	02
Male sterilization	16	02
Other	15	02
Total	**907**	**100**

Source: United Nations, 2019

As a whole, 45.2% of family planning users depend on permanent or quite long-acting techniques or devices such as sterilization, IUD or implant. Nearly 47% of family planning users are widely using short-acting methods such as male condom, pill and injectable.

Especially 8% of users are adopting traditional family planning methods such as withdrawal and rhythm methods globally. As a notable point, a steady decline can be seen in the use of traditional family planning techniques from the year 1990. In 1990, traditional family planning usage was recorded as 6% and this has dwindled to 4% in the year of 2019. However, between 1994 and 2019 there is a slight increase of users in the withdrawal method from 37 million to 47 million. On the other hand, a decline can be seen in users of rhythm methods from 36 million to 29 million between 1994 and 2019 (UN, 2019).

1.8 Regional Trends on the Use of Family Planning

When the family planning usage is discussed based on the regions, in almost all regions, the usage of the pill, IUD, rhythm and withdrawal methods has remained relatively steady over the previous 25 years (UN, 2019). As a notable point, the usage of male condoms has doubled from 4.5% in 1994 to 10% in 2019. Especially this trend can be seen from Eastern and South-Eastern Asia as 5% in 1994 to 17% in 2019. Especially, use of family planning among women in sub-Saharan Africa has increased from 13% to 29% within 1990 to 2019 (UN, 2019).

Figure 1.1 indicates in the Caribbean and Latin America regions; pills and the women's sterilization (14.9% and 16%) are the most commonly used family planning methods. However, in European and Northern American regions, pills (17.8%) and condoms -male (14.6%) are the mostly used methods.

When looking at the Central and Southern Asian regions female sterilization (21.8%) is the mostly used family planning method. IUD is the most commonly used family planning method in Eastern and South-Eastern Asia. In North African and West Asian regions, mostly used tools are the pill (10.5%) and IUD (9.5%).

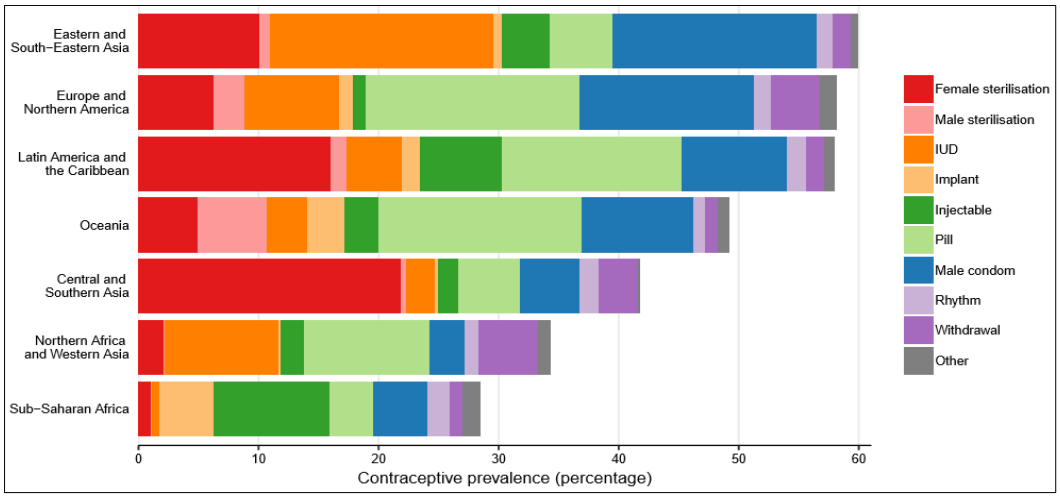

Figure 1.1: Contraceptive Usage by Method among Women in Reproductive Age Span by Region, 2019
Source: United Nations, 2019

Oceania as the fourth highest contraceptive prevalence region, the main family planning method used more often is the pills. It is recorded as 16.9%. However, Sub-Saharan Africa is the only region where family planning prevalence is lowest among all regions and there, the injectables (9.6%) is the leading method that is used by women in reproductive age (UN, 2019).

1.8.1 Family Planning Trends in South Asia

The South Asian region is a multi-ethnic and multi-cultural region with the current developing economies. The majority of counties are being called as developing countries, government and national planning strategies aim to decrease unwanted pregnancies and improve the family planning availability and usage among their countries. Table 1.4, shows the recent trends of family planning prevalence based on the usage of methods in the Region of South Asia.

In the South Asian region, the most used method is female sterilization and its highest prevalence can be seen from India as 29% followed by Maldives 19%. Second most prevalent family planning method is pills and it records the highest in Bangladesh (23.1%) and lowest percentage is reported in Pakistan (1.2%). Injectables are the third most used method in the South Asian region and its lowest prevalence has been reported in India. Its highest prevalence is reported in Bhutan (18.6%). Compared to other countries, Sri Lanka shows the highest prevalence for the IUD (7.3%) and lowest percentage (0.5%) from Bangladesh.

Table 1.4: Percentages of Usage by Method among 15- 49 Women those Who Used Family Planning in South Asian Region, 2019

Country	Female Sterilization	Male Sterilization	Pill	Injectables	Implant	IUD	Male Condom	Rhythm	Withdrawal	Any Method (Total)
Afghanistan	1.7	0.0	5.7	4.1	0.2	1.2	2.9	0.0	1.3	17.1
Bangladesh	4.2	1.0	23.1	10.7	1.5	0.5	5.5	4.6	1.4	52.5
Bhutan	4.7	8.0	4.8	18.6	0.1	2.4	3.6	0.3	0.0	42.5
India	29.0	0.2	3.1	0.2	0.0	1.2	4.3	1.6	2.9	42.5
Iran	10.8	2.1	11.2	2.6	0.0	6.0	10.2	0.2	10.4	53.5
Maldives	19.0	0.5	4.3	1.1	0.5	0.8	8.7	2.6	3.3	40.8
Nepal	12.5	4.6	3.8	7.4	2.7	1.2	3.5	0.5	4.2	40.4
Pakistan	6.4	0.1	1.2	1.8	0.3	1.5	6.4	0.6	5.1	23.4
Sri Lanka	10.2	0.0	5.9	5.9	3.2	7.3	4.8	5.8	3.1	46.2

Source: United Nations, 2019

When it comes to the traditional family planning usage among the South Asian region, rhythm method is mostly used in Sri Lanka (5.8%) and its lowest percentage of prevalence is reported in Afghanistan as 0%. Secondly, rhythm method is mostly used in Bangladesh (4.6%). Withdrawal method is mostly used by people in Iran amounting to 10.4%. However, comparatively all other countries have reported less than 5% of usage in withdrawal method instead of Pakistan (5.1%). It emphasizes that, compared to the other regions in the world, South Asian region plays a moderately progressive development in family planning since 1990 indicating 30% to 42% in 2019 (UN, 2020)

1.8.2 Family Planning Trends in Sri Lanka

When considering the family planning usage and trends in Sri Lanka, as a result of the policy implications in the beginning of 1960s and the contraceptive programs conducted in the country has driven the contraceptive prevalence rate (CPR) up to 61.7% in 1987 and its 50% of the contribution was from the voluntary sterilizations to the total prevalence. One of the major reasons for that increase was in the

facilities for sterilization services and the financial incentives given by the government to the acceptors of voluntary sterilizations (Ministry of Health, 2019).

Currently as an important point, contraceptive use is relatively high among rural women (70%) compared to the women living in the estate sector (64%) (WHO, 2014). According to table 1.5, modern family planning usage in Sri Lanka has been increasing from the year 1975 (20.3%) to 2016 (53.6%). Nevertheless, in traditional family planning usage has started to decline from 1982 by 26% to 2016 by 11%.

Table 1.5: Modern and Traditional Family Planning Prevalence Rate from 1975 – 2016 in Sri Lanka

Year	Modern Family Planning Prevalence (%)	Traditional Family Planning Prevalence (%)
1975	20.2	14.2
1982	31.9	26.0
1987	40.6	21.1
1993	43.7	22.4
2000	49.5	20.5
2006	52.5	15.9
2016	53.6	11.0

Further, Demographic and Health survey (DHS) in 2016 stated that, current national level contraceptive prevalence rate was 65%. The report further reveals that 61.7% of ever married women were using some form of contraceptive method while 38.3% were not adopting any technique or a tool. Nearly 10.4% were used traditional methods and modern methods were used by 51.3% of ever married women. Additionally, the report showed that total demand for contraceptive was 72% and unmet need for contraceptives was reported as 7.5%.

1.9 Contraceptive Prevalence Rate – CPR

When observing the concept of family planning, it is worthwhile to understand contraceptive prevalence rate (CPR). It can be defined as 'percentage of women who use any contraceptive method' (Sri Lanka Demographic and Health Survey – SLDHS, 2016). And also, CPR can be calculated separately for modern contraceptive prevalence as well as traditional contraceptive prevalence.

Global trend of contraceptive prevalence has been increasing since 1970. From 1970 to 2017, global contraceptive prevalence has increased from 35% to 63%. Almost all regions in the world have contributed to this increment and highest contraceptive prevalence can be seen in regions of Northern America and Europe. It shows the percentage of 65% in 1970 to 70% in European countries and 74% in North American countries by 2017. Lowest prevalence can be seen in the region of Africa (UN, 2017) (Figure 1.2).

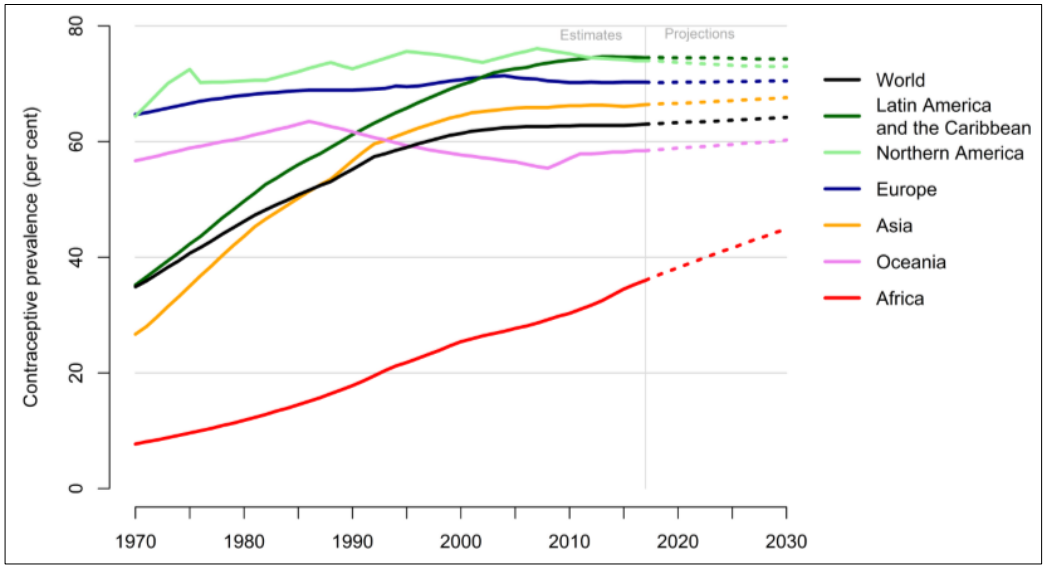

Figure 1.2: Contraceptive Prevalence (any method) Among Married or In-Union Women, by Region, From 1970 to 2030
Source: United Nations, 2017

It is important to note that, globally, African contraceptive prevalence shows the lowest trend of increase compared to the other regions that, the contraceptive prevalence increased from 8% in 1970 to 36% in 2017. However, in Asian region

contraceptive prevalence has been increasing within 1990 to 2000. Especially from 1970 to 2000, it increased from 27% to 65%.

According to the 2020 World fertility and family planning highlights, in Asian region, contraceptive prevalence rates have increased from 26% to 34% within the period of 1990 to 2019 and in Western Asia, from 30% to 42% in Central and Southern Asia and from 51% to 60% in Eastern Asia and South-Eastern Asia. Sri Lanka as a South Asian country contraceptive prevalence rates have started to increase since 1973 (Ministry of Health, 2019). According to SLDHS 2016 report, the current Sri Lankan contraceptive prevalence rate is reported as 64.6% (Table 1.6).

Table 1.6: Contraceptive Prevalence Rates Between Years1975 – 2016 in Sri Lanka

Year	Contraceptive Prevalence Rate - CPR (%)
1975	34.4
1982	57.9
1987	61.7
1993	66.1
2000	70.0
2006	68.4
2016	64.6

According to table 1.6 it is observed that, between 1975 to 2006 prevalence rate has doubled. However, from 2000 to 2016 a slight decline can be seen in contraceptive prevalence rates from 70% to 64.6%. Notably, it could be due to the decline in the use of permanent methods (Ministry of Health, 2019).

1.10 Problem Statement

Globally contraceptives eliminate one-third of deaths related to the pregnancy and 44% of neonatal deaths. This is due to the suitable family planning interventions in timing and spacing of pregnancies. However, compared to the modern methods, the failure rate of traditional family planning methods is recorded as high (Gunawardena and Hettiarachchi, 2012). It can affect mother and child health; especially unwanted pregnancies, teenage pregnancies, abortions, maternal deaths, premature births etc. And also, its lead to increase elderly pregnancies due to the most of traditional methods were highly used by women in older ages in reproductive age span (40-49 years) (Kabir et al., 1986; Gunawardena and Hettiarachchi, 2012).

On the other hand, while few modern contraceptive methods help to avert the risk of having HIV/AIDS and other STIs, traditional methods are not capable of protecting people from these infections (Shaw, 2010). It shows that there is a risk for having sexually transmitted infections for those who are using traditional family planning methods. However, it is important to note that, Sri Lanka has been identified as one of the countries with highly who depend on traditional family planning methods than the modern methods (Singh et al., 1997). Therefore, the problem identified in this research is the need to find out why still 10.4% of women those who ever married are using traditional methods.

1.11 Objectives of the Study

Based on the detailed above description, the objectives of this study are to:

- identify the differences of characteristics among traditional and modern family planning users in Sri Lanka.
- identify the individual influence of demographic, socio-economic and programmatic factors on usage of traditional family planning via separate binary models.
- modelling the factors influence on traditional family planning usage among women in Sri Lanka by using a binary logistic model.

1.12 Significance of the Study

According to the 2030 Sustainable Development Agenda, goal number three was formed to enhance the world population's health in each and every area in common theme of: good health and well-being. With regard to this goal, target number 3.7 is addressing the importance of family planning and sexual and reproductive health that enables 'ensure universal entree to sexual and reproductive health care facilities, including contraceptive related facts and teaching, and the incorporation of reproductive health into nationwide policies and agendas by 2030'.

Yet however, when addressing the family planning requirements and issues in light of the global level policies, it cannot be implemented in the same manner as in all the regions in the world in same mode. Especially with regard to the Sri Lankan women's family planning practices, it is important to know the reasons for the usage of traditional family planning methods instead of modern methods in this 21st century. Therefore, before implementing the integrated national level policies to enhance women's family planning usage to enhance their reproductive health and well-being, it is very useful to identify how different factors influence on their family planning options, especially in choice of traditional family planning methods.

Therefore, this research will be helpful for policy makers, researchers and decision makers to take relevant decisions on family planning interventions and regarding decisions on family planning market that how those traditional family planning users will get attracted to the modern family planning by addressing their needs. Further this research will show the precise path to achieve 2030 development goals, to accomplish universal access to reproductive health by 2030 by fulfilling the gaps or demographic, socio and economic factors related issues that mostly influence women's traditional family planning practices.

1.13 Outline of the Dissertation

This dissertation is systematized into seven (07) chapters**.** Chapter one provides an introduction to the concepts, definitions, trends and history of family planning globally as well as in the context of Sri Lanka. Further this chapter elaborates the problem statement, significance of the study and research objectives as well.

Chapter two covers the literature review that is related to this research which have been conducted by scholars in global level and national level.

In chapter three, the methodology used for conducting this research is elaborated along with the statistical models and hypotheses.

In chapter four, five and six, the results of the analysis will be presented under three categories as exploratory analysis of demographic, socio and economic characteristics of traditional family planning users in Sri Lanka through the creation of a binary logistic regression models for determining the individual as well as simultaneous influencing on traditional family planning usage among women in Sri Lanka.

In the seventh chapter, contains the, conclusions, recommendations and suggestions according to the results obtained in the research.

CHAPTER 2
LITERATURE REVIEW

Many researchers have found that numerous factors are associated with the usage of family planning according to the family planning basic classification, namely modern and traditional methods. It can be found that different factors are influenced in different ways with regards to family planning interventions (Jato et al., 1999; Lanre, 2011). Therefore, it is worthwhile to find out how the research scholars have identified demographic, socio, economic and other factors that would influence women's family planning usage and notably in usage of traditional family planning methods.

2.1 Factors Associated with Family Planning Usage Around the World

In 1987, Bashir Ahmed conducted a research to find out the determinants of current usage and intention to use the contraceptives. Ahmed used the survey data of Bangladesh world family planning survey conducted in 1978 for the analysis. 5024 rural married women have been interviewed under the sample of this survey. In this research, demand for children, supply of children, cost of regulations and socio-economic controls have been taken as the main categories of variables.

Using logistic regression analysis, Ahmed has developed two models namely model A with the demand for children, supply of children, and costs of regulation variables and model B with socio-economic variables and all variables in Model A. According to his findings, on one hand the demand for children affects the log odds of current use of contraceptives negatively. Breastfeeding in the last closed interval, and pregnancy wastage, variables are statistically significant at the 0.05 level or below. Among the supply variables, child mortality is the most significant factor for determining current use of contraceptives. On the other hand, the magnitude of its impact is similar to the distance to a family planning clinic. Further it shows that the effect of breastfeeding is positive, possibly due to the higher supply of surviving children. Women living 3-4 miles away from a clinic are more prefer to use contraceptives than women living 0-2 miles away. Employment of

the female partner is the variable with the largest positive effect and however it was not significant due to the lowest female labour force participation. Notably, findings show that the variables representing demand, supply, and costs appear to be important determinants of intention to practice birth controls in the future. Among the socioeconomic variables, education of the spouses indicates a positive and statistically significant impact at the 0.10 significant level.

Another research has been conducted in Bangladesh by Mustufa and other researchers in 2019, to find out the programmatic variables connected with the usage of contraceptive methods in Bangladesh. This research has been carried out using the data unveiled in Bangladesh Demographic and Health Survey 2014 and this research has been carried out by cross tabulating and modeling a multinomial logistic regression model to analyze the association of various factors. According to the findings, women who have heard on contraceptives via radio or TV ($p = 0.000$/ Wald test statistics= 37.999), newspaper ($p = 0.001$/ Wald test statistics= 10.846) and frequency of watching TV ($p = 0.001$/ Wald test statistics= 39.927) are significant in the model with the use of contraceptive methods. Further they elaborated that, family planning facilities received from community clinics, is statistically significant ($p = 0.001$/ Wald test statistics= 5.630).

Above findings can be justified by the research conducted by Degni and other researchers in Finland, 2010 to find out the societal based factors that might be linked with some Iranian married women's attitudes to contraceptive usage in Finland. Data was collected within the period of 2000 to 2005, via interviews from 120 married Iranian women. This research has been analyzed using comparative and descriptive analysis techniques. However, this research has not been carried out using any statistical method to find out the associated factors with the use of contraceptive methods.

Further according to the findings, the relationship between communications with the sexual and reproductive health care professionals (88%), despite the use of explainers in the counselling room (95%) have resulted in contraceptive use. As another justification factor of Mustufa and others findings, this research was

justified that, the health awareness and support given by the reproductive health care providers (83%) and spouses' communication (76%) are directly affecting the use of contraceptives among the Iranian women. Further, this study reveals that more than 8% of women had decided with their partners not to have any more children between the women seems strikingly different. Communication style, cultural attitudes and social connections of the Iranian women were directly associated with the use of contraceptives. Not only researcher elaborated that, women's ethnicity, religion and social interactions influence on their decision making on contraceptive usage, but also the changes in family together with struggles between parents and adolescent children were one of the key reasons (72%) prefers to have less children and controlling births in Finland.

However, the research conducted by Lanre in 2011, has found that the factors influencing the use of family planning methods among married couples in Southwest Nigeria has indicated that, socio-economic levels (x^2 = 6.32), religion of the couple (x^2 = 8.53) and cultural norms (x^2 = 8.53) are not statistically associated with the choice of family planning.

Data for the research was gathered through a descriptive survey and the sample population was 600 couples across Southwest Nigeria. Gathered data was analyzed through descriptive and inferential statistics of frequency count, percentages and chi-square test statistics. Additionally, according to the chi square test statistics results, researchers emphasized that, educational status of the couple (x^2 = 21.26) and involvement of the partners (x^2 = 23.26) are statistically associated with the choice of family planning.

Further in 2013, Palamuleni conducted a research in Malawi to manifest the socio-economic and demographic factors influencing the contraceptive usage. Data was gathered through Malawi Demographic and Health Surveys conducted in the year 2000 and 2004. Analysis was carried out using bivariate and multivariate logistic regression models. Programmatic, demographic, socio-cultural, attitudinal and regional variables have been taken as the independent variables.

According to the findings of the logistic regression analysis, current use of contraceptives is positively associated with the age (p = 0.000), number of children (p = 0.000), and level of education (p = 0.000). Further, approval of spouses (p = 0.000), discussion of family planning with spouse (p = 0.000) are associated with the usage of family planning methods. When considering the findings of multivariate analysis, the place of residence (p = 0.05) is significantly associated with use of contraceptives. Further women's education (p = 0.000), number of children ever born (p = 0.05), work status (p = 0.000), are influenced on use of contraceptives.

Palamuleni's findings can be justified by the research conducted by the Akokuwebe and others, to reveal the factors influencing on the usage of family planning among women in rural societies in Osun State, Nigeria conducted in 2016. Data was gathered by 400 consenting rural women from households via a descriptive study design with a pre-tested self-administered semi-structured questionnaire. Collected data was analyzed by summary statistics and association between categorical variables have been tested using the Chi-square test. According to the received results, age (p = 0.000 / OR = 1.84; 95%), number of children (p = 0.000 / OR = 1.74; 95%) and education level (p = 0.000 / OR = 2.12; 95%) were statistically associated with the usage of family planning methods among women in rural societies.

Level of education can be seen as an important factor in Palamuleni's research and this also can be justified through the research carried out by Ekpenyong and others in Bauchi state in 2018 to reveal the factors influencing utilization of family planning facilities among females of reproductive age between 15-45 years. To find out the factors, data was collected through a descriptive cross-sectional study questionnaire provided to 100 women in age between 15 – 45 years. Data was analyzed using, descriptive statistics and by pearson's Chi square test to check the connection between variables. Age, academic attainment and knowledge level of family planning methods have been taken as the explanatory variables in the chi square test. According to the findings of Ekpenyong and others research, academic

attainment (p = 0.013 / x^2 = 8.711) and level of knowledge of family planning methods (p = 0.037 / x^2 = 6.569) were revealed as the associated factors with the utilization of family planning services.

According to the justification of findings revealed by Ekpenyong and Palamuleni's, Calikoglu and others have carried out a research amongst women those who aged 15–49 years living in the Erzurum state, Turkey in 2018 to find out the use of family planning and other influencing features amongst women in Erzurum. Data for this study was collected through a descriptive cross-sectional analysis with the sample size of 627 women in reproductive age span. In the analysis process, Mann-Whitney U tests, chi square test, chi square trend analysis and logistic regression analysis were tested.

According to Calikoglu and others research findings, chi square statistics shows the women's age catogories (x^2 = 6.609/ p = 0.037), educational levels (x^2 = 22.525 / p = 0.001), income groups (x^2 = 14.228 / p = 0.05), and total numbers of pregnancies (x^2 = 9.079/ p = 0.05), were identified as statistically significant factors with use of family planning methods. Further, according to the logistic regression analysis of this research, among the variables of age, level of education, working status and monthly income variables, age (p = 0.023; Exp (B)=1.034; 95% CI: 1.005–1.064) was the individual identified significant factor that affecting the use of contraceptives.

2.2 Factors Associated with Traditional Family Planning Usage Around the World

As the main objective of identifying the determinants of traditional family planning usage in this research, it is worthwhile to understand how the other research scholars have identified the factors connected with the methods of traditional family planning usage in different parts in the world. However, it has been reported that. traditional family planning methods have not received an adequate attention in the recent literature (Gebreselassie et al., 2017; Rossier & Corker, 2017).

In 1985, Bertrand and other researchers conducted a research to detect the variables influencing the use of traditional and modern contraceptive methods in Bas Zaire, Kongo. Data were collected through a sample survey which included data from women aged between 15 to 49 years. Gathered sample data was investigated using descriptive statistics, bivariate analysis, multiple logistic analysis and log linear analysis.

According to the multiple logistic regression model, age of the youngest child (stranded error = -4.13), economic status (stranded error = -3.02), and breastfeeding status (stranded error = -1.91) have been significantly associated with the use of traditional family planning. As an important point, findings revealed that, use of a traditional contraceptive has decreased as the age of the youngest child increases. Further, with the log liner model, research emphasized that, age of the youngest child ($p = 0.001$), breastfeeding ($p = 0.025$) and economic status ($p = 0.05$) are significantly influenced on the use of traditional family planning methods.

Bertrand and other's research findings can be justified by the research done by Calikoglu and others in Erzurum, Turkey in 2018. Research was carried out to reveal the use of family planning methods and other prompting factors amongst women in Erzurum. In the study, chi square test and logistic regression analysis were used to identify the factors. Rendering to the results of this research, traditional family planning methods were most commonly used within the age group of 35 years or older and however, the difference was identified as not statistically significant.

Further, use of traditional methods have been higher among women along with the partners educated to the high school level and use of traditional contraceptive was the highest among the income level of 1001–3000. According to the performed logistic regression model, age ($p = 0.023$; Exp (B)=1.034; 95% CI: 1.005–1.064) was the only variable that can be regarded as the statistically significant variable associated with the usage of effective traditional techniques.

However, Gardenal in 2018 revealed that the age ($p = 0.0093$), financial status ($p = 0.0608$) and educational levels ($p = 0.0964$) are not significantly associated with the traditional family planning usage. This research was carried out to identify the factors associated with use of traditional contraceptive methods in the Democratic Republic of Congo. To find out the factors, data was gathered through a two-stage sampling design by obtaining data via cross sectional sample from Performance Monitoring and Accountability 2020 (PMA 2020) survey. Data was analyzed through Chi-square statistics and multinomial logistic regression analysis to find out the associated variables with traditional family planning usage. In this research rhythm, withdrawal and other family planning methods have been taken as the traditional methods.

Further results emphasize that relationship status ($p = 0.0458$) and number of children ($p = 0.0452$) are significantly connected with traditional family planning usage. Exposure to educational information ($p = 0.0702$), family planning messages received through radio ($p = 0.0370$), TV ($p = 0.0685$) and health care workers ($p = 0.0704$) are not been significantly associated with traditional family planning usage under the exposure to family planning messages variable.

Level of education is a vital factor according to the Gardenal's and Calikoglu's research findings and it has been justified by the research done by Rossier & Corker in 2017. Research was conducted to find out the determinants of the current use of traditional contraceptive methods in Sub-Saharan Africa. Demographic and Health Survey data conducted since 2008 have been used to explore the patterns and determinants of traditional contraceptive methods use in sub-Saharan Africa. Data was analyzed through descriptive statistics and logistic regression analysis. According to the results of logistic regression analysis, educated ($p = 0.001$), wealthier ($p = 0.05$), and non-Muslim women ($p = 0.001$) are more likely to use traditional methods and education ($p = 0.001$) and religion factors ($p = 0.05$) are significantly associated with the use of traditional contraceptive usage in Sub Saharan Africa.

In 2017, Gebreselassie and other colleagues have carried out a research to find out the trends, determinants, and dynamics of traditional family planning methods used in 16 developing countries that have completed more than five demographic and health surveys in the countries. Bangladesh, Indonesia, Philippines, Egypt, Jordan, Colombia, Dominican Republic, Peru, Ghana, Kenya, Malawi, Rwanda, Senegal, Tanzania, Zambia, and Zimbabwe are taken as the 16 countries. Data for the analysis were taken from the recently conducted DHS surveys in respective countries. For the analysis process, rhythm method, withdrawal, prolonged breastfeeding, herbs, massage, other folkloric methods, and any other method not specifically classified as modern have been taken as the traditional family planning methods. To identify the determinants on use of traditional family planning usage among these countries, binary logistic regression analysis was conducted.

According to Gebreselassie research, use of traditional family planning methods are statistically associated with, education (odds ratio = 3.13; CI= 95%; p = 0.01), and urban areas (odds ratio = 1.8; CI= 95%; p = 0.01) in some countries. Women with more than five children (odds ratio = 1.75; CI= 95%; p= 0.01) were positively associated with the use of traditional family planning techniques. Association between the use of traditional family planning methods and wealth was statistically significant only in some states and with opposite order. According to the findings, further researchers mentioned that the trend of prevalence in traditional family planning methods decreased over time in most countries.

On the other hand, influence in programmatic factors on traditional family planning methods is an important point to find out and Jato and others have carried out a research to find out the impact of media family planning promotion on the contraceptive behavior in both contraceptive methods on the family planning behavior of women in Tanzania in 1999. Data source for the research was taken from Tanzania Knowledge, Attitudes and Practice Survey (TKAPS94) conducted in 1994. Bivariate and multiple logistic regression analysis were carried out to find the factors related to the way in which multimedia family planning promotion would affect both methods of family planning usage.

The model designed with the women who are using any traditional contraceptive method indicated that, the odds ratios are significant only for few exposures in media sources such as newspaper (odds ratio = 3.0; SD = 0.2), poster (odds ratio = 2.0; SD = 0.4) and leaflets (odds ratio = 2.4; SD = 0.5). specially it revealed that, media exposure has a weak association with radio (odds ratio = 1.01; SD = 0.1), Zindikal (odds ratio = 1.2; SD = 0.2), logo campaign (odds ratio = 1.3; SD = 0.2) and television (odds ratio = 2.01; SD = 1.4) on use of traditional contraceptive methods. Therefore, it emphasizes that, traditional contraceptive methods are not significantly associated with most of the multimedia family planning promotions and it may have happened due to the traditional family planning methods not usually being advertised, and reported in the media promotions.

2.3 Factors Associated with Traditional Family Planning Usage in Sri Lanka

As a South Asian country, Sri Lanka has been reported as a high prevalence country with the usage of traditional contraceptive methods (Sing et al., 1997). However, when referring to the researches done by other scholars regarding traditional family planning usage in Sri Lanka, it is very hard to find researches in comparison to the other countries or as in other regions in the globe. Specially literature on factors associated with usage of traditional family planning methods have not been examined often in Sri Lanka (Perera, 2014; Gunawardane and Hettiarachchi, 2012).

Caldwell and others in 1987 conducted a research to find out the characteristics of traditional fertility regulation in Sri Lanka. With the sub objective of making a different kind of investigation on fertility patterns and determinants, researchers have been conducted in 1984 under the project of Sri Lankan traditional fertility control programme. This research was carried out in two phases and the first phase consisted of an intensive study of three chosen localities of one urban, one rural and one estate sector areas and the second phase consisted of revisits to these same families, usually a number of times, and explored the families in-depth.

The analyzed study revealed that education and a significant proportion of love marriages have a significant effect on using the rhythm method. In addition to that, authors stated that, cultural norms, especially the ethnicity, religious beliefs and knowledge of modern and traditional contraceptives and myths of modern contraceptives have influenced the usage of traditional family planning methods. However, the significant factors of this research have not been justified through any statistical analysis.

However, in 2012, Gunawardane and Hettiarachchi conducted a statistical based research to find out the factors influenced on use of modern and traditional contraceptive methods among women in rural Sri Lanka. With the objective of finding out the factors, data was collected from two groups who used traditional contraceptive method and modern contraceptive method in equal number of 217 per each in the Badulla district belongs to Uva province. Main tool of data collecting was an interviewer-administered questionnaire. Women's age, occupation, nationality, educational level, family type, monthly income, having children, opinion about services from public health midwives, , distance to the field family planning clinic and opinion regarding family planning clinics have been taken as the variables.

According to the conducted logistic regression analysis, women' who are older than 35 years ($p<0.001$), women's who represent as Muslims ($p=0.045$), living in a extended household ($p<0.001$), being child less ($p<0.001$), youngest child being older than six years ($p=0.012$), unavailability of info on modern methods ($p<0.001$), public health midwifes not conducting home visits ($p<0.001$), living farther than 1 km from clinic ($p=0.002$), non-utilization of clinic services ($p<0.001$), negative views about public health midwife 's services ($p<0.001$), negative opinion regarding services at field clinic ($p<0.001$) and poor knowledge on modern family planning ($p=0.015$) were reported as influenced factors with the usage of traditional family planning methods.

Gunawardane and Hettiarachchi's research findings can be justified by the research carried out by Perera in 2014 in Sri Lanka to identify the preference for traditional

family planning use and women's education. According to the research objective, this study collected the data through quantitatively and qualitatively. The quantitative data for the study have been taken from the Sri Lanka Demographic and Health Survey (DHS), 2006/7. Qualitative data was gathered through in-depth interviews from 20 women among whom, eight women from the age group 15-29 and six women from age group 30-39 years and another six women from age group 40-49 years. Collected data was analyzed using bi-variate cross tabulations and content analysis methods. Mainly education, number of living children, and respondent's residence have been used as the explanatory variables. However, the findings of this research have not been justified by using any statistical modeling technique.

According to the bivariate analysis, the highest number of traditional contraceptive methods were used by women who are having 1-2 children (68%) and women who living in rural parts (86%). Another important point was revealed that, majority of (46%) traditional family planning users are represented from higher educational levels than those who have passed G.C.E. Ordinary level or above. And also, the highest traditional methods are used by women who belong to the age group of 40-44 years (54%). Further, with the evidence of qualitative data Perera stated that, fear on side effects of modern methods, effective communication and the corporation with spouse, not having time to purchase of modern contraceptive methods, misbelieves of the effects of modern contraceptive methods and strong assurance on success of traditional family methods have influenced the use of traditional family planning methods among women in Sri Lanka.

2.4 Factors Associated with Modern Family Planning Usage Around the World

Considering the modern family planning and associated factors in use of modern contraceptives, in 2010 Qazi and other researchers conducted a research to find out the factors associated with modern contraceptive use in Karachchi, Pakistan. With the objective of determining the use of contraceptive methods and factors associated with modern contraceptive use, researchers have carried out a cross

sectional study of 288 females those who represent the age between 16 to 50 living in Karachi to collect the data. To find out the associated factors in modern family planning use, logistic regression analysis was performed.

According to the univariate analysis age (odds ratio = 0.288), socio economic condition (odds ratio = 1.00), age of last child (odds ratio = 1.00), general practitioner (odds ratio = 3.06), family planning worker (odds ratio = 9.416), TV (odds ratio = 0.217), radio (odds ratio = 0.209) print media (odds ratio = 0.206) and billboard (odds ratio = 0.077) were statistically significant with modern contraceptive use. Further, researchers elaborated that, age (AOR = 0.426), addiction (AOR = 0.381), family planning worker (AOR = 6.315), TV (AOR = 0.402) and billboard (AOR = 0.207) were statistically associated with the use of modern family planning according to the multiple regression model.

The role of family planning workers has been identified as a significant factor on usage of modern contraceptive methods as mentioned by Qazi and other's research and it was justified further by Mohammed and other researchers in 2014 by finding the determinants of modern family planning utilization among married women in reproductive age span in Ethiopia. For the data collection process, researchers have used a community based cross-sectional study which was conducted in 2010 among 851 married women withing aged 15–49 years in Birhan District in Ethiopia. To identify the determinants of contraceptive usage, bivariate and multivariate logistic regression analyses were used over collected data through a questionnaire.

According to the research findings, discussions with health extension workers, the educational status of male and female spouses, urge to have more children, number of living children, discussion of wives with their spouses, approval of modern method use by husband and status of decision making on modern method, factors were statistically important (all the variables are significant with the p-value of less than 0.01) with the use of contraceptives. When considering the model designed through multiple logistic regression, respondents desire for more children (AOR= 5.71; COR = 5.62), number of living children (AOR= 0.355; COR = 0.97), husband

consent of use to modern methods (AOR= 2.82; COR = 7.16), communication of husband-wife (AOR= 7.32; COR = 14.89) and family monthly income (AOR= 0.50; COR = 0.60) were statistically significant with use of modern birth control methods.

Further, when considering the factors influencing on family planning utilization, Sidibe and others carried out a research in 2020 to find out the factors impacting on modern contraceptive use in Mali and Senegal. To find out the factors impacting on the use of modern contraceptive methods in Mali and Senegal, the researchers have done a quantitative cross-sectional study using a questionnaire to collect the data. Chi-square test and binary logistic regression analysis was used to analyze the relevant factors on ever using family planning.

According to the findings, those who have a higher education level ($p = 0.018$), have spent their childhood in urban areas rather than rural areas ($p = 0.000$), employed faraway from the home ($p = 0.020$), engage in independent social activity ($p = 0.005$), more knowledgeable about contraceptive methods ($p = 0.000$), believing their religion is not against contraceptives ($p = 0.021$) and talk on family planning with their spouse ($p = 0.010$) are the factors associated with the usage of modern family planning methods.

2.5 Summary of the Chapter 2

As identified by the previous research scholars, factors influencing usage of traditional family planning can be divided into main sub themes as demographic, socio-economic and programmatic factors. Accordingly, the above international and national level literature indicate that, the use of traditional family planning methods are influenced by various determinants such as age, marital status, type of marriage, marital duration, demand for children and supply of children under the demographic factors. Further it can be stated that, religion, wealth status, residence, education level and cultural norms under the socio-economic factors and costs of regulation, distance to family planning clinics, information provided on family planning on radio, television, newspaper and home visits by health providers and

public health midwives under the programmatic factors are influenced the usage of traditional family planning methods.

In such a case the above-mentioned literature revealed that there is a lack of research on traditional family planning usage among reproductive aged women in Sri Lanka using SLDHS 2016 data. Additionally, it shows that there is a research gap of statistical analysis on traditional family planning usage in Sri Lanka as well. Therefore, this research is helpful to generate a statistical model that can be used to identify the determinants of traditional family planning usage among women in Sri Lanka and it contributes to bridge the research gap of traditional family planning usage in Sri Lanka.

CHAPTER 3
METHODOLOGY

This chapter describes the methodological strategy adopted in this study and explains the research techniques used. Further this chapter describes the statistical approach that was adopted to undertake the secondary data analysis using the data from SLDHS 2016 survey.

3.1 Data Collection Procedure

This study is mainly based on the secondary data gathered from Sri Lanka Demographic and Health Survey (SLDHS) in 2016, conducted by the Department of Census and Statistics, Ministry of National Policies and Economic Affairs and Ministry of Health, Nutrition and Indigenous Medicine. This SLDHS 2016 survey is the 5^{th} survey conducted in Sri Lanka with the objective of finding out the recent data to monitor and evaluate the impact of population, health and nutrition programmes employed by different government agencies in Sri Lanka.

3.1.1 Sampling Procedure

The SLDHS 2016 sample was a multi-stage stratified probability sample design representing the entire country. The survey has used two stage stratified sampling designs and at the first stage 2500 census blocks were selected as primary sampling units and 12 housing units were selected from each selected primary sampling units as the secondary sampling units. A total of 28,800 housing units have been selected for the survey. Among them 27,210 were enumerated and detailed information was collected from all ever-married women aged between 15 – 49 years and also from their children. Within the households, 18,302 ever married women were successfully interviewed.

3.1.2 Data Collection Technique

Data for the SLDHS was collected through a questionnaire from household and eligible women through personal interviews. Questionnaire had two main sections namely household and another section on women and children. The women and

children section were used to collect data from ever married women aged 10 - 49 years. Under this section, data was collected through 12 sub sections such as, background characteristics, reproductive history, knowledge and use of family planning methods, pregnancy and postnatal care, child immunization, health and nutrition, fertility preferences, husband's background and wife's employment, awareness about AIDS and other sexually transmitted infections (STIs), awareness about well-women clinics, children who need special care (disabled), early childhood development and other health issues. Questionnaires were prepared in Sinhala and translated into Tamil and English languages (refer annexure 1 – included only the sections that have been used for this research).

3.2 Sample Data Used for the Study

All the women within the age between 15 – 49 years those who are using family planning methods (Both traditional family planning methods and modern family planning method users) have been taken as the study sample through Sri Lanka Demographic and Health Survey (SLDHS)- 2016.

This study sample covered all the districts and urban, rural and state sectors in Sri Lanka. According to the selected study sample 10,835 women who are within the age 15 – 49 years are using family planning methods. Among them, 1768 of women are using traditional family planning methods while the rest of the other 9067 are using modern family planning methods. For developing the final binary logistic model, 10,835 women who used family planning methods have been taken.

3.3 Study Variables

In order to find out the factors which influence traditional family planning usage among women in Sri Lanka, this research has identified the following variables as the study variables.

3.3.1 Dependent Variable

Dependent variable has been created as women who are using traditional family planning methods by combining those who respond (Yes = 1 or No = 2 answers) for the questions 'Have you ever used the Rhythm Method?' and 'Have you ever used the Withdrawal Method?'. Final dependent variable has been developed as 1= traditional family planning users (TFP) and 2= modern family planning users (MFP).

3.3.2 Independent Variables

Independent variables have been selected for the analysis under three categories as demographic, socio-economic and programmatic factors. Table 3.1 describes each variable, labels and codes belonging to the variable that have been used for the analysis (Table 3.1).

Table 3.1 Independent Variables and Data Labels

Category	Independent variable	Data labels	Codes used in the models
Demographic Characteristics	Women's age	1 – '42-50'	WA1
		2 – '33-41'	WA2
		3 – '24-32'	WA3
		4 – '15-23'	WA4
	Husband's age	1 – '49-63'	HA1
		2 – '34-48'	HA2
		3 – '19-33'	HA3
	Marital Status	1 – 'Married or living together'	MS1
		2 – 'Divorce or separated'	MS2
		3 – 'Widowed'	MS3
	Number of Children	1 – 'Childless'	NC1
		2 – '1 to 2 children'	NC2
		3 – '3 or above children'	NC3
	Women's' education level	1 – 'Degree & above'	WE1
		2 – 'Passed G.C.E A/L	WE2
		3 – 'Passed grade 1 to G.C.E O/L	WE3
		4 – 'No schooling or only pre school	WE4
	Husband's education level	1 – 'Degree & above'	HE1
		2 – 'Passed G.C.E A/L	HE2
		3 – 'Passed grade 1 to G.C.E O/L	HE3
		4 – 'No schooling or only pre school	HE4
	Sector	1 – 'Urban'	RS1
		2 – 'Rural'	RS2
		3 – 'Estate'	RS3

	Districts by FP usage	1 – 'High usage districts'	DU1
		2 – 'Moderate usage districts'	DU2
		3 – 'Lowest usage districts'	DU3
	Knowledge of FP	1 – 'Good'	FK1
		2 – 'Moderate'	FK2
		3 – 'Poor'	FK3
	Decision to use FP	1 – 'My decision'	FD1
		2 – 'Husband's decision'	FD2
		3 – 'Decision of both'	FD3
		4 – 'Decision of PHM'	FD4
Socio-economic characteristics	Ethnicity of women	1 – 'Sinhala'	RE1
		2 – 'Tamil'	RE2
		3 – 'Muslim'	RE3
		4 – 'Burger'	RE4
	Religion of women	1 – 'Buddhism'	RR1
		2 – 'Catholic'	RR2
		3 – 'Islam'	RR3
		4 – 'Hindu'	RR4
	Wealth quantile	1 – 'Highest quantile'	WQ1
		2 – 'Lowest quantile'	WQ2
		3 – 'Middle quantile'	WQ3
	Women's occupation	1– 'Manager, professional and administrative jobs	WO1
		2 – 'Clerical, sales, industry and machine related workers	WO2
		3 – 'Unemployed'	WO3
		4 – 'Eliminatory occupation'	WO4
	Husband's occupation	1– 'Manager, professional and administrative jobs	HO1
		2 – 'Clerical, sales, industry and machine related workers	HO2
		3 – 'Eliminatory occupation'	HO3
		4 – 'Unemployed'	HO4
Programmatic Factors	Having advices from PHM	1 – 'No'	AP1
		2 – 'Yes'	AP2
	Exposure to FP via electronic media	1 – 'Yes'	EE1
		2 – 'No'	EE2
	Exposure to FP via printed media	1 – 'No'	EP1
		2 – 'Yes'	EP2
	Exposure to FP via digital media	1 – 'No'	ED1
		2 – 'Yes'	ED2
	Attend to well women clinic	1 – 'Yes'	AW1
		2 – 'No'	AW2
		3 – 'Not aware'	AW3

The following criteria is used when assessing the knowledge and awareness of family planning and formulating the residential districts by family planning usage.

- **Assessment of Knowledge and Awareness of Family Planning**

The knowledge and awareness of family planning is assessed using 12 questions asked by the responded women in the SLDHS questionnaire. The questions have two answers as 'yes' and 'no'. Each correct answer was scored as 1 and incorrect answers were scored as 0. Respondents were categorized into three categories according to the total score they have received. The three categories and scores for each category are given in table 3.2.

Table 3.2: Categories and Scores of Knowledge and Awareness of Family Planning

Coding No	Categories	Score
1	Good	Score between 09-12
2	Moderate	Score between 05-08
3	Poor	Score between 00-04

- **Formulating the Residential Districts by Family Planning Usage**

The categories of residential districts by family planning usage are formulated by referring to the usage of contraceptives based on each district as given by the SLDHS report 2016. The following three categories are formulated after considering the percentage of family planning usage by each district (Table 3.3).

Table 3.3: Categories and Percentages of Formulating Residential Districts by Family Planning Usage

Coding No	Categories	Score
1	High usage districts	Percentage above 70
2	Moderate usage districts	Percentage between 40-70
3	Lowest usage districts	Percentage below 40

Socio-economic factors have been taken as respondents' ethnicity, religion, wealth quantile of the family, respondent's occupation and husband's occupation. Those who attended women clinics and exposure to family planning methods via digital

media, electronic media and printed media have been taken as programmatic factors.

3.3.3 Conceptual Framework for the Study

According to the referred literature, the following conceptual framework has been developed (Figure 3.1). It shows how the various types of demographic, socio-economic and programmatic factors can affect usage of traditional family planning among women in Sri Lanka. The interactions among demographic, socio-economic and programmatic factors are shown by the yellow arrows.

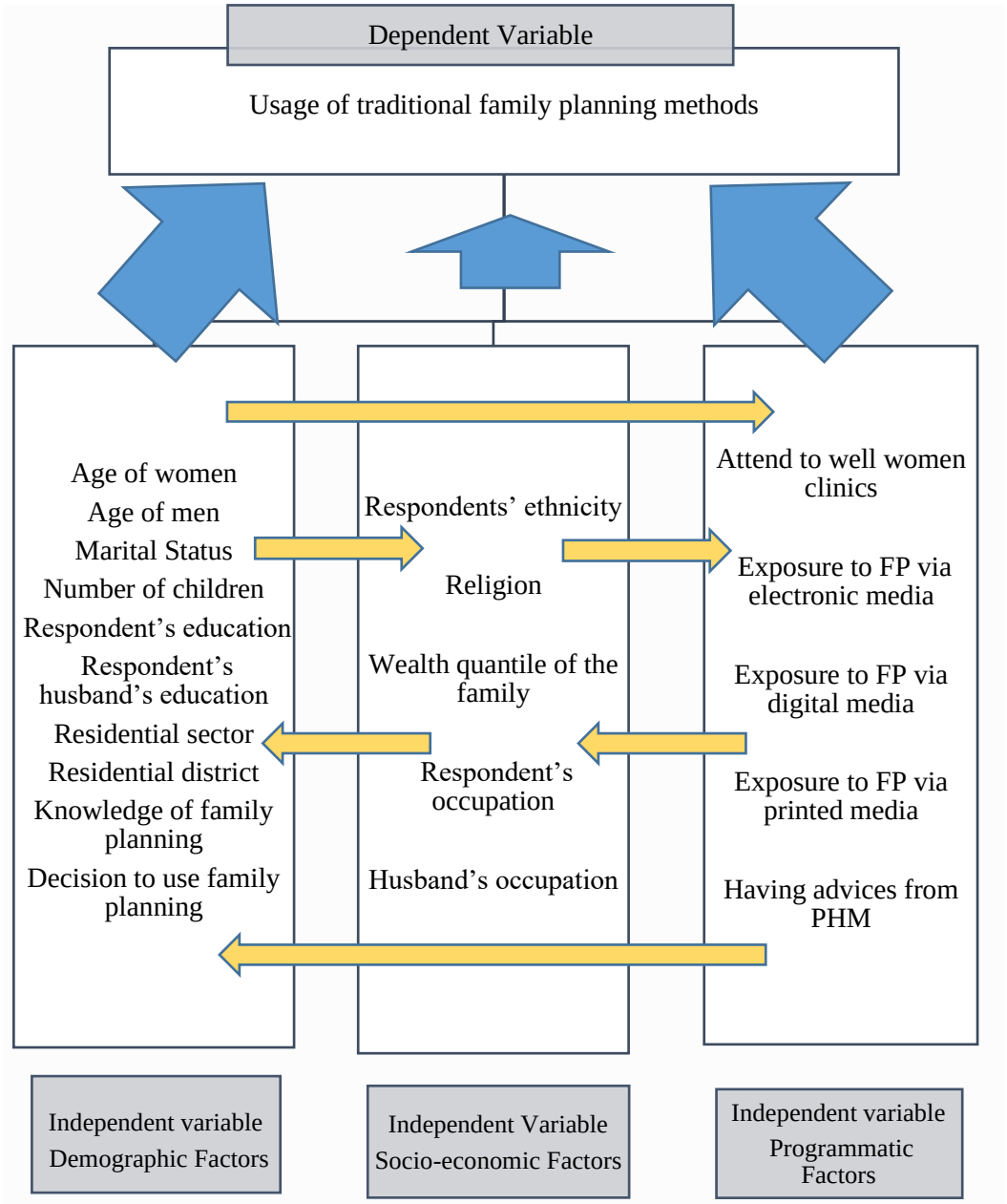

Figure 3.1: Conceptual Framework

3.4 Data Analysis Method

Data analysis is the main part of a research and it includes a more detailed method in publicizing and presenting data findings in a way that is easy to interpret and make policy related decisions. This section elaborates the statistical tools that have been used to conduct the analysis and statistical methods which have been used to develop the statistical models related to the research objectives.

3.4.1 Statistical Tools and Methods

Gathered data from the SLDHS 2016 survey was analyzed by using the statistical package of Social Sciences (SPSS) version 22. Graphs, charts and tables were reproduced using Microsoft (MS) Excel software.

3.4.2 Pearson's Chi Square Test (χ2)

The Chi-square test is best method to check the association between two categorical variables. This test is commonly used for test the goodness of fit and testing of independence (Walker, 1995).

The hypothesis test for the Chi-square test is

H_0: There is no association between dependent variable and independent variables

H_1: There is an association between dependent variable and independent variables

The formula for computing the Chi-square value, χ^2, is

$$\chi 2 = \sum_{i=1}^{m} \left(\frac{(o_{i-E_i})^2}{E} \right) \ldots\ldots\ldots\ldots\ldots (3.1)$$

3.4.3 Spearman's Rank Correlation

Spearman's rank correlation is using to compute the strength of a relationship between two variables. Spearman's rank correlation is using to calculate the monotonic relationships among variables that are not linear. Specially this correlation is appropriate for both continuous and discrete ordinal variables. According to the Spearman correlation, a perfect relationship can be within the range of +1 or −1. Spearman's rank correlation can be measured by using following formula:

$$\rho = 1 - \frac{6 \sum d_i^2}{n(n^2-1)} \ldots\ldots\ldots\ldots (3.2)$$

ρ = Spearman's rank correlation coefficient

d_i^2 = difference between two ranks of each observation

n = number of observations

3.4.4 Logistics Regression

As the dependent variable, use of traditional family planning methods among ever married women has two possible outcomes, that is, yes or no, the binary logistic regression analysis technique is best suited for this study.

3.4.4.1 Binary Logistic Regression Model

Logistic regression is a statistical model that in its basic form uses a logistic function to model a binary dependent variable, even though many more complex extensions exist. Mathematically, a binary logistic model has a dependent variable with two possible values, such as agree and disagree which is represented by an indicator variable, where two values are labeled "0" and "1". In the logistic model, the log-odds (the logarithm of the odds) for the value labeled "1" is a linear combination of one or more independent variables ("predictors"); the independent variables can each be a binary variable (two classes, coded by an indicator variable) or a continuous variable (any real value).

The modal for the logistic regression can be written as:

$$\text{logit}\, p(x) = \log \frac{P(X)}{1 - P(X)} \quad \text{……. (3.3)}$$

$$p(x) = \frac{\exp\left(\beta_0 + \beta_1 x\right)}{1 + \exp\left(\beta_0 + \beta_1 x\right)} \quad \text{…….. (3.4)}$$

Assumptions for the logistic regression model:

- Dependent variable should be measured in a dichotomous scale
- There should be one or more independent variables, which can be either continuous or categorical
- There should be independence in observations and the dependent variable should have mutually exclusive and exhaustive categories.

Statistical significance parameters for the logistic regression model

- Cox and Snale R^2 and Nagelkerte R^2

This indicates the percentage of variance of independent variables explained by the model. This is similar to R^2 in regression and these values are sometimes referred to as pseudo R^2 values.

- Hosmer- Lemeshow Test

This is a statistical test used to test the goodness of fit for logistic regression models. It is used frequently in risk prediction models. This assesses whether or not the observed data match expected data computed under a hypothetical model. This is also a lack of fit statistics and it is given by:

$$H = \sum_{g=1}^{n} \frac{(O_{g-}E_g)^2}{N_g\pi_g(1-\pi_g)} \quad \text{..... (3.5)}$$

3.4.5 Odds and Odds Ratio

An odd ratio is a measure of association between an exposure and an outcome. Odds ratio represents the odds that an outcome will occur given a particular exposure, compared to the odds of the outcome occurring in the absence of that exposure.

$$\text{Odd ratio} = \frac{\text{p(event occurs)}}{\text{p(event does not occur)}} \quad \text{..... (3.6)}$$

$$\text{Odd ratio} = \frac{\text{p}}{(1-\text{p})} \quad \text{..... (3.7)}$$

3.5 Data Interpretation Methods

Analyzed secondary data was interpreted by using statistical one-way tables, two-way tables, moddels, charts, graphs, and in word format.

CHAPTER 4
EXPLORATORY DATA ANALYSIS

This chapter provides an exploratory statistical analysis of women who use family planning methods in Sri Lanka. It describes the characteristics of traditional family planning users and modern family planning users in Sri Lanka where only the percentage distribution among categories within each variable has been discussed by using 2-way frequency tables.

4.1 Background Characteristics

As explained in section 3.1.1, 18,302 ever married women at age between 15 - 49 years were taken as the eligible sample for the DHS survey. Out of 18,302, different types of family planning methods to control their births have been used by 10,835 women. Table 4.1 shows the background characteristics of ever married women who use family planning in Sri Lanka.

According to the background characteristics of family planning users shown in table 4.1, majority (40.4%) represents the age category of 33-41 years. More than 80% of respondents are reported from the rural sector and 5.5% represents the estate sector. Just above 75% (76.4%) of family planning users are represented by Sinhalese and the religion of highest respondents is Buddhism (71.6%) and lowest percentage (7%) is represented by Islamicist.

Table 4.1: Percentage Distribution of Background Characteristics among Family Planning Users (N=10835)

Variable	Category	Percentage (within the variable)
Age	15-23 Years	6.1
	24-32 Years	26.4
	33-41 Years	40.4
	42-50 Years	27.1
Sector	Urban	13.6
	Rural	80.9
	Estate	5.5
Religion	Buddhism	71.6
	Hindu	13.4
	Islam	7.0
	Catholic	8.0
Children	0 children	19.6
	1-2 children	72.4
	3 or above	8.0
Ethnicity	Sinhala	76.4
	Tamil	16.6
	Muslim	6.8
	Burger	0.2
Education	No schooling or only primary education	1.8
	Grade 1 - G.C.E. O/L	69.5
	Passed G.C.E. A/L	24.5
	Degree & above	4.2
Occupation	Not working	68.2
	Elementary occupation	12.0
	Clerical, sales, industry and machine related workers	11.9
	Managers, professionals and administrators	7.9
Wealth quantile	Lowest	42.3
	Middle	20.2
	Highest	37.5

Further table 4.1 shows that, more than 70% of (72.4%) respondents are having 1-2 children and it is important to note that, 8% of respondents are having more than 3 children. As a notable point 1.8% of respondents reported as no schooling or only completed their primary education while 70% of women had completed their education from grade 1 – G.C.E. O/Ls. Nearly 70% (68.2%) of respondents are

unemployed and 12% of women are working in a category of eliminatory occupation. However, nearly 8% of respondents are working in high levels of employment capacities such as managers, professionals and administrators. More than two fifth of respondents (42.3%) are under the category of lowest wealth quantile and highest wealth quantile is represented by 37.5% respondents.

4.2 Distribution of Users by Method of Family Planning and Types

4.2.1 Method of Family Planning

According to figure 4.1 it shows that, among the family planning users, 16.3% of respondents are using traditional family planning methods. The remaining 83.7% are using modern family planning methods.

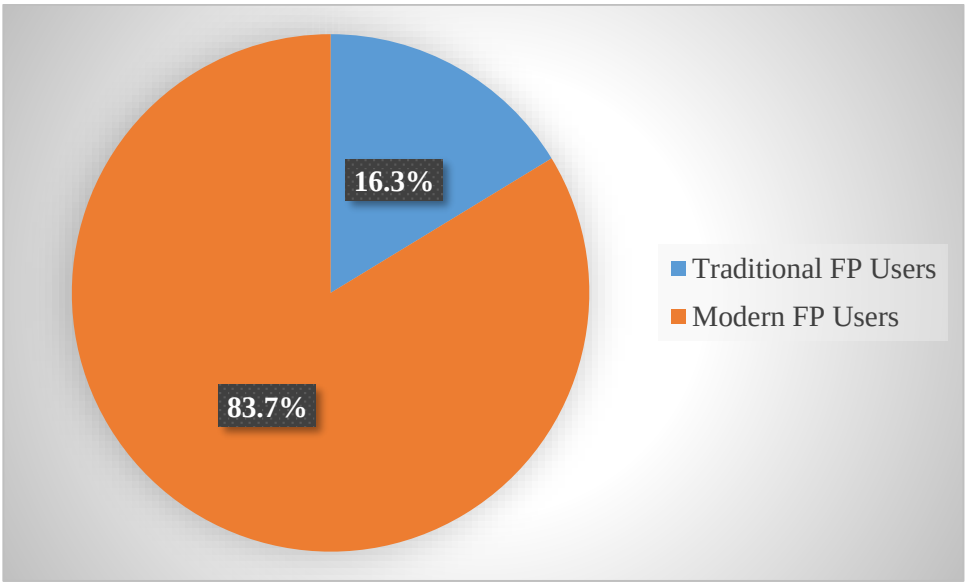

Figure 4.1: Distribution by Method of Family Planning Usage among Ever Married Women in Sri Lanka (n = 10835).

4.2.2 Type of Traditional Family Planning Method Used by Traditional Users

Among the traditional family planning users (TFP), nearly 35% are using the withdrawal method and 57% of respondents are using the rhythm method (figure 4.2). It emphasizes that, majority of traditional family planning users prefer to use rhythm method than the withdrawal method. Further nearly 8% of respondents are using both methods of withdrawal and rhythm.

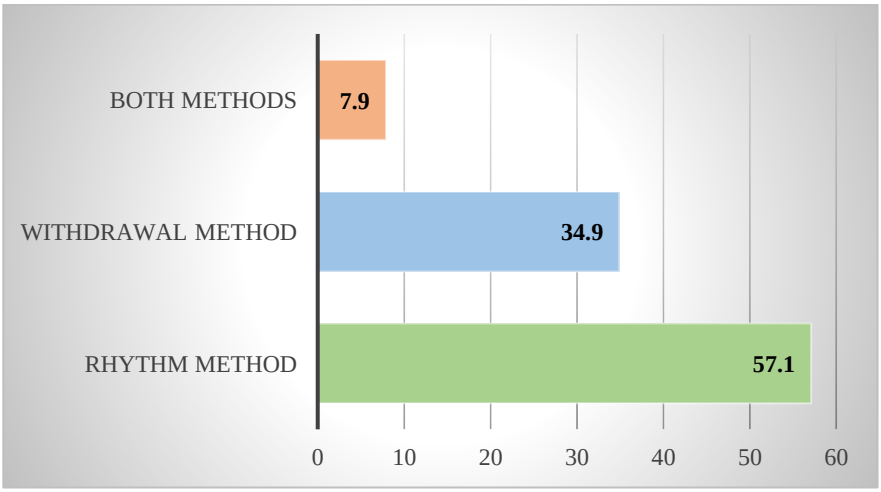

Figure 4.2: Usage of Traditional Family Planning by Method

4.3 Demographic Characteristics among Traditional Family Planning Users and Modern Family Planning Users

4.3.1 Age

According to figure 4.3, the mean age of the traditional family planning user's (TFP) is 37.5 years with the standard error (SE) of 7.5 while the mean age of modern family planning users (MFP) is 35.7 years with SE of 7.5. It emphasizes that both age distributions are negatively skewed.

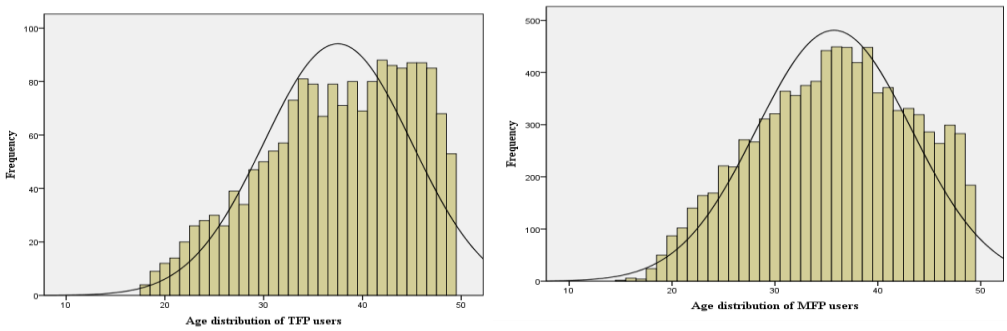

Figure 4.3: Age Distribution of TFP Users and MFP Users

When considering the women's age categories, 38.4% of TFP users belong to the age category of 33 – 41 years and followed by (36.2%) women in 42 – 50 years category. Lowest percentage (4.8%) is reported as belonging to the age category of 15 – 23 years (Table 4.2).

Table 4.2: Age Distribution of TFP Users and MFP Users in Sri Lanka by Age Categories

Age categories	**TFP users (%)**	**MFP users (%)**
15-23 years	4.8	6.4
24-32 years	20.6	27.6
33-41 years	38.4	40.8
42-50 years	36.2	25.2
Total	100.0	100.0

However, the percentages of MFP users in the all three age groups below 41 years are higher than the percentages of TFP users. However, as a notable point, MFP users under the age category of 42 – 50 years (25.2%) are lower than the percentage of the traditional family planning users (36.2%) within the same age group.

4.3.2 Marital Status

According to table 4.3, marital status of the traditional family planning users, majority (99%) are married or living together with their spouses while 0.3% of women are widowed, divorce or separated.

Table 4.3: Marital Status among TFP Users and MFP Users in Sri Lanka

Marital Status	TFP Users (%)	MFP users (%)
Married or living together	99.7	98.3
Divorce or separated	0.2	0.8
Widowed	0.1	0.9
Total	100.0	100.0

It emphasizes that the trend within the marital status is almost similar for traditional family planning users and modern family planning users.

4.3.3 Sector

The distribution of TFP users and MFP users among the sectors is shown in figure 4.4.

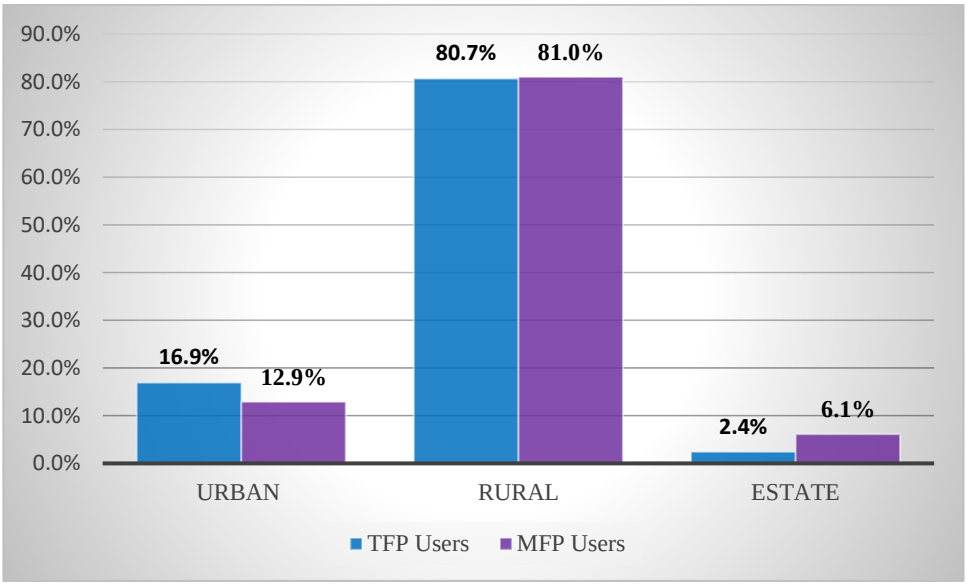

Figure 4.4: Sectoral Distribution of TFP Users and MFP Users

According to the sectoral distribution of traditional family planning users, the majority of women (80.7%) represent the rural sector. As a notable point, the urban sector represents 16.9% of TFP users and 12.9% of MFP users. It indicates that urban women prefer to use traditional family planning methods than the modern methods.

The above trend is different for the estate sector compared to the urban sector. In the estate sector 6.1% are modern family planning users compared to 2.4% of traditional family planning users. However, a notable difference is not visible among the TFP users and MFP users in the rural sector.

4.3.4 District by Usage

According to figure 4.5 shown below, among the TFP users, 62.6% belong to the district category of moderate usage of family planning and 35.8% of TFP users belong to the district category of high usage. However, the category of low usage is represented by nearly 2% of TFP users.

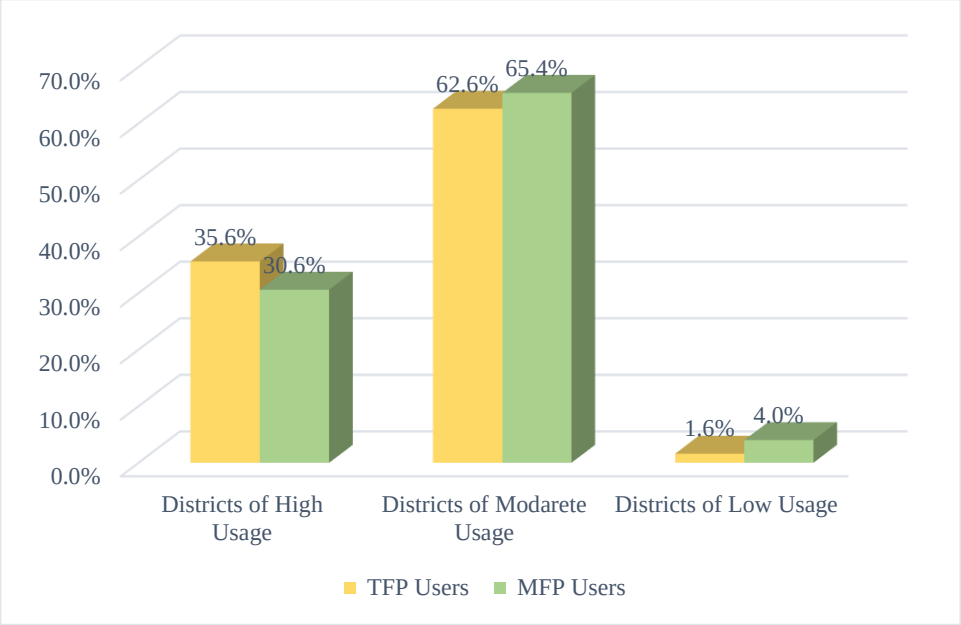

Figure 4.5: Distribution of Districts by Usage of TFP Users and MFP Users

The same trend can be seen among the MFP users that, majority (65.4%) belong to the district category of moderate usage of family planning. Though, only 30.6% of respondents from the MFP users belong to the district category of high usage.

4.3.5 Educational Level

The distribution by educational attainment of TFM users and MFP users is shown in table 4.4.

Table 4.4: Distribution by Educational Attainment of TFP Users and MFP Users

Education category	TFP users (%)	MFP users (%)
No schooling or only preschool	0.6	2.0
Attend grade 1 - GCE O/L	57.6	71.9
Passed GCE A/L	33.6	22.7
Degree or above	8.1	3.5
Total	100.0	100.0

Results revealed that, among the traditional family planning users more than 55% of women belong to the educational category of grade one to G.C.E ordinary levels. Further it shows, among the TFP users 33.6% of women have passed G.C.E advanced level and 8% of women had a degree or above qualification. However, the women who belong to those two categories among MFP users are represented by low percentages respectively as 22.7% and 3.5% compared to the TFP users. It shows that higher preference for traditional family planning methods were given by more educated women in Sri Lanka.

Among the MFP users, more than two third (71.9%) of women have attended grade one up to G.C.E ordinary levels as their educational attainment and 2% of MFP users are representing the lowest level of educational attainment as no schooling or only preschool. Nevertheless, the TFP user's representation in the lowest educational category (0.6%) is very low.

4.3.6 Number of Children

According to figure 4.6 shown below, the majority (69.6%) of traditional family planning users are having 1-2 children. Notably, the usage of traditional methods is very low (2.5%) among the women who had 3 or more children. However, as an important point, nearly 28% of TFP users are women who are childless.

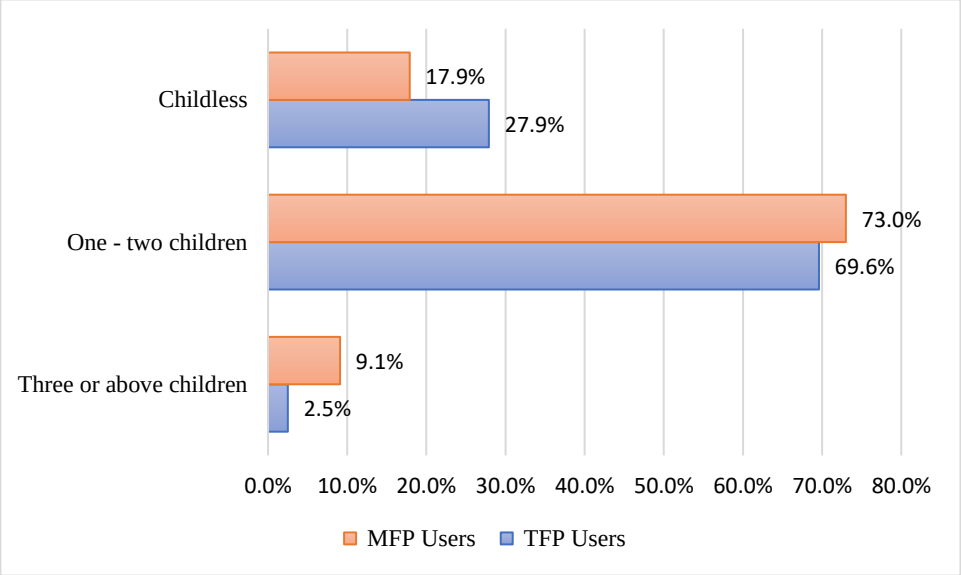

Figure 4.6: Distribution of Number of Children among TFP Users and MFP Users

The same trend can be seen among the MFP users that the highest percentage is represented from 1-2 children category (73%). However, 9.1% of remarkable MFP users belong to the category of children with 3 or above. It emphasizes that, the women who have more than three children mostly prefer to use modern family planning methods than the traditional family planning methods. On the other hand, amongst childless women, the majority prefer to use traditional family planning methods (27.9%) than the modern (18%) methods.

4.3.7 Family Planning Knowledge and Awareness

Family planning knowledge and awareness among TFP users and MFP users are shown in figure 4.7. According to the results, 57.4% among the traditional family planning users possess good knowledge regarding family planning and poor knowledge is shown only among 1% of TFP users.

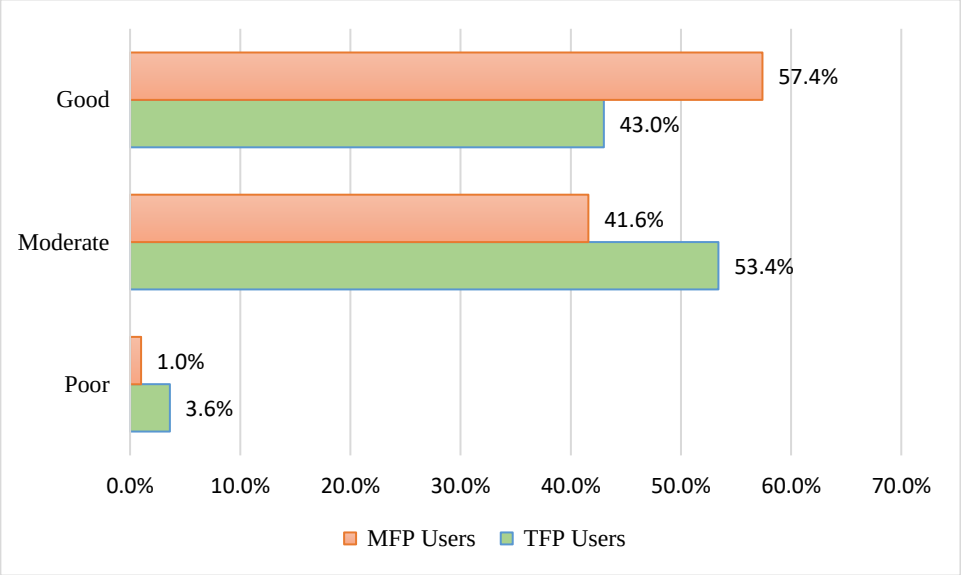

Figure 4.7: Distribution of Knowledge on Family Planning among TFP Users and MFP Users

On the other hand, among the MFP users, more than fifty percent (53.5%) of women possess moderate knowledge on family planning and 43% possess good knowledge. As a notable point, 3.6% of MFP users possess poor knowledge on family planning. It emphasizes that, traditional family planning users possess better knowledge on family planning compared to the MFP users.

4.3.8 Person Who Took the Decision to Use Family Planning

As shown in figure 4.8 below, among the traditional family planning users, 88% of women have taken their decision to use traditional family planning as a mutual decision (Husband and Wife). However, as an important point 7.4% of TFP users took their decision to use traditional family planning as a decision of their husband. On the other hand, women's self-decision is represented as a low percentage when considering the decision of using traditional family planning methods.

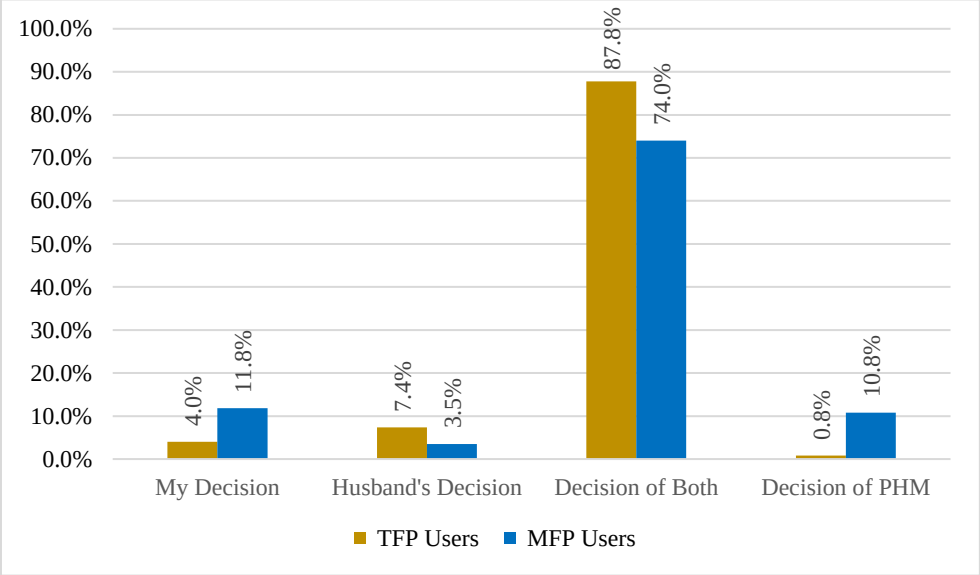

Figure 4.8: Distribution of TFP Users and MFP Users on Person Who Took the Decision to Use Family Planning

Among the MFP users, 74% of women took their decision to use modern family planning methods as a decision of both parties. Compared to the TFP users, MFP user's percentage of women's self-decision to use family planning is reported as high (11.8%). It can be seen as the influence of public health midwives on using modern methods that 10.8% of MFP users have taken the decision to use family planning as the result of having advice from a public health midwife.

4.4 Socio- Economic Characteristics among TFP Users and MFP Users

4.4.1 Ethnicity

Distribution of TFP users and MFP users according to their ethnicity is shown in figure 4.9. According to the results, the majority of traditional family planning users are Sinhalese (85.5%) and the lowest percentage (0.2%) represented by Burgers. Further according to the analysis, nearly 8% traditional family planning users can be identified as Muslims.

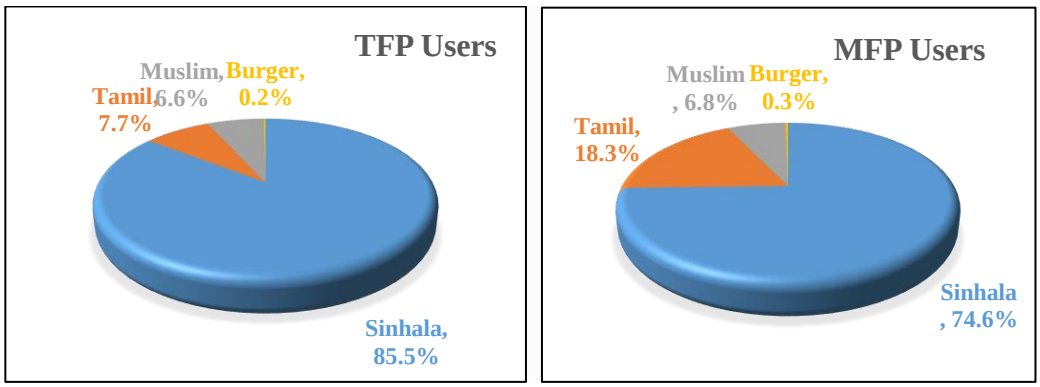

Figure 4.9: Distribution of TFP Users and MFP Users by Their Ethnicity

As an important point, among the MFP users 74.6% are Sinhalese while 18.3% are Tamils. It emphasizes that, the Sinhala TFP user's percentage is higher than the Sinhala MFP user's percentage. However, Tamil's MFP usage is higher (18.3%) compared to the Tamil's TFP (7.7%) usage.

4.4.2 Religion

According to the results shown in table 4.5, 78.8% of TFP users and 70.2% of MFP users are Buddhist. It shows that the usage of traditional family planning methods is slightly high among Buddhists compared to the MFP users.

However, nearly 6% of Hindu women are using traditional family planning methods while their representation among MFP users is slightly high (14.9%). It emphasizes that, Hindu women prefer to use modern family planning methods than the traditional family planning methods.

Table 4.5: Distribution of TFP Users and MFP Users based on Their Religion

Religion	Percentage of users	Percentage of non-users
Buddhism	78.8	70.2
Hindu	5.9	14.9
Islam	6.6	7.0
Catholic	8.7	7.9
Total	100.0	100.0

Among the TFP users, 8.7% are represented as Catholics and 7.9% are Catholics using MFP methods. Trend of Islamic women's usage of traditional family

planning is quite similar (6.6%) to the Islamic MFP user's percentage (7%). It shows that, the trend of Catholic's and Islam's TFP usage and MFP usage is quite similar when compared with other users depending on their religion.

4.4.3 Wealth Quantile

Distribution of TFP users and MFP users based on their wealth quantile is shown in figure 4.10.

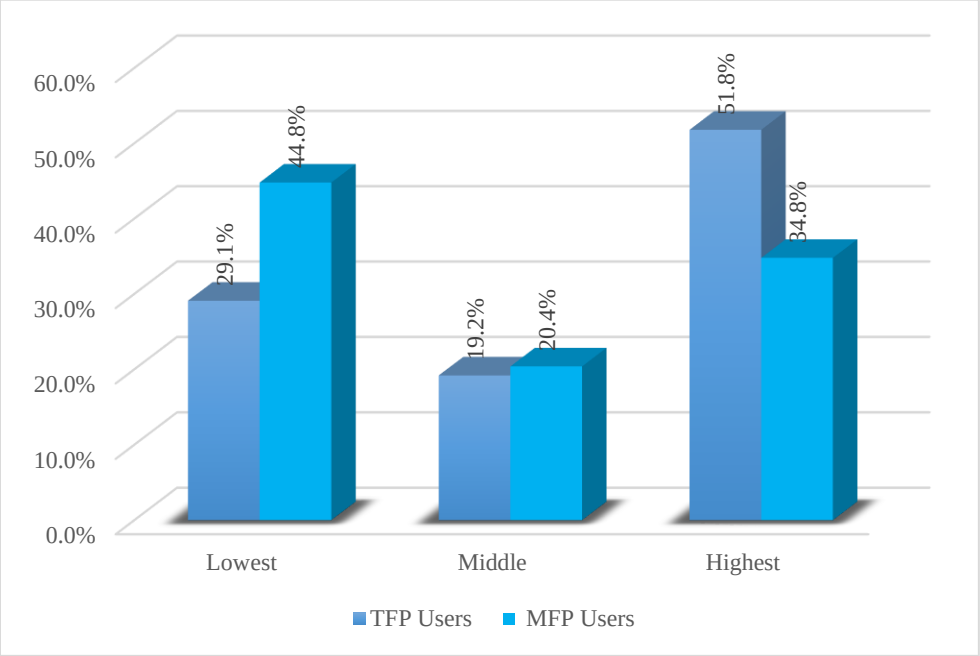

Figure 4.10: Distribution of TFP Users and MFP Users by Their Wealth Quantile

According to the results, more than fifty percent of (51.8%) traditional family planning users belong to the highest wealth quantile. On the other hand, nearly 30% of TFP users represent the lowest wealth quantile.

Among the MFP users, nearly 45% of women belong to the lowest wealth quantile and highest wealth quantile is represented by only 35% of MFP users. It shows that women who represent the highest wealth quantile prefer to use traditional family planning methods than the modern family planning methods. However, a similar trend can be seen among TFP users and MFP users within the middle wealth quantile.

4.4.4 Women's Level of Occupation

According to table 4.6 shown below, nearly 60% of the TFP users are unemployed. However, 12.9% of TFP users belong to the occupation category of managers, professionals and administrators. When it is compared with the percentage of MFP users belonging to the same occupation category of managers, professionals and administrators, it is represented nearly as 7%. It emphasizes that, women who are in higher levels of occupations prefer to use traditional family planning methods than the modern methods.

Table 4.6: Distribution of TFP Users and MFP Users by Their Level of Occupation

Employment level	**TFP Users (%)**	**MFP Users (%)**
Unemployed	59.8	69.9
Eliminatory occupation	12.0	12.0
Clerical, sales, industry and machine related workers	15.3	11.2
Managers, professionals and administrators	12.9	6.9
Total	100.0	100.0

Among the MFP users, nearly 70% of women are unemployed and 12% of women are doing eliminatory occupations. However, clerical, sales, industry and machine related workers are higher among TFP users (15.3%) than the MFP (11.2%) users' percentage.

4.4.5 Husband's Level of Occupation

Distribution of TFP users and MFP users according to their husband's occupation level can be seen in figure 4.11 shown below. According to that, nearly 40% of traditional family planning user's husbands are working in the areas of clerical, sales, industry and machine related fields. However more than 25% (26.1%) of husbands among TFP users are in a higher level of occupation such as managers, professionals and administrators. On the other hand, nearly 5% of TFP user's husbands are unemployed.

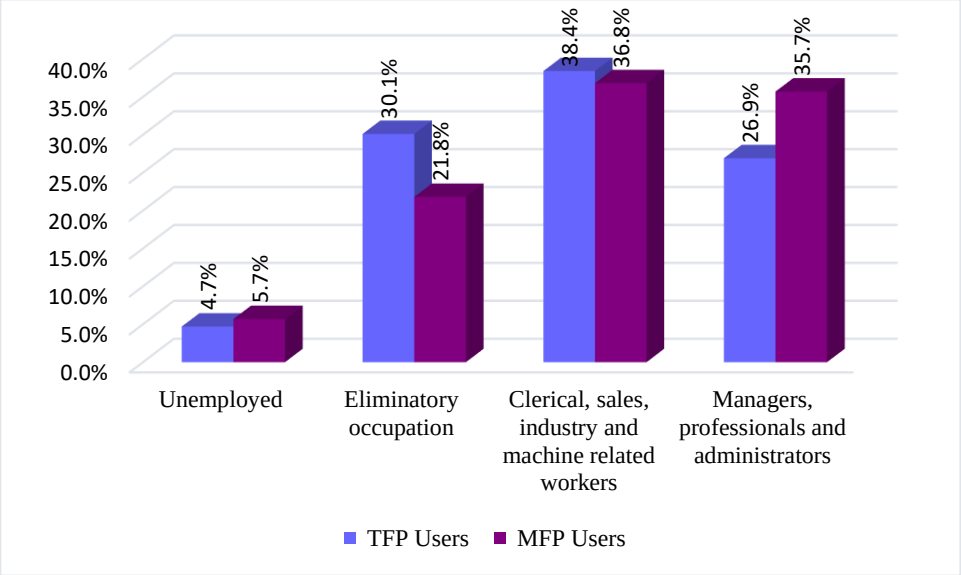

Figure 4.11: Distribution of TFP Users and MFP Users by Their Husband's Occupation Level

However, among the MFP users, 36.8% of husbands are in related fields of clerical, sales, industry and machine related areas and nearly 36% of husbands representing the higher level of occupations such as managers, professionals and administrators among the MFP users. Among the MFP users nearly 6% of husbands are unemployed and it is quite a similar representation to the unemployed (5%) percentage of TFP users.

4.5 Programmatic Characteristics among TFP Users and MFP Users.

4.5.1 Exposure to Family Planning via Media

Media plays a significant role in disseminating the knowledge and awareness of family planning among women. Table 4.7 shown below reveals the distribution of TFP users and MFP users according to the exposure to family planning via media.

Results revealed that, 50.7% among the TFP users, have heard or seen a message from the electronic media regarding family planning. However, only 42.4% of MFP users have heard or seen a message from the electronic media regarding family planning.

Table 4.7: Differences of TFP Users and MFP Users by Exposure to Family Planning via Media

Media source	**Electronic**		**Printed**		**Digital**	
Exposure	**TFP Users (%)**	**MFP Users (%)**	**TFP Users (%)**	**MFP Users (%)**	**TFP Users (%)**	**MFP Users (%)**
Yes	50.7	42.4	43.6	33.6	8.0	4.3
No	49.3	57.6	56.4	66.4	92.0	95.7
Total	100.0	100.0	100.0	100.0	100.0	100.0

As an important point, 43.6% among the TFP users, have seen or read a message regarding family planning via printed media such as newspapers and magazines. However, the MFP user's exposure to family planning via printed media is quite low (33.6%) than the TFP users.

As a notable point, TFP users and MFP user's exposure to family planning via digital media is very low. It represents 8% from the TFP users and 4.3% from the MFP users. It manifests that digital media such as the internet is used by a very low percentage of women to gain an idea on family planning. Further results reveal that, traditional family planning user's exposure to above three types of media regarding the family planning is quite higher than the MFP user's exposure.

4.5.2 Having Advices from Public Health Midwives

Public health midwives are playing an active role in family planning promotions and advising on sexual and reproductive health practices for the married couples in Sri Lanka (SLDHS, 2016). According to figure 4.12, among the TFP users, nearly 33% of respondents are seeking advice from PHM. However, the majority of TFP users (67.5%) are not receiving any advice from the PHM.

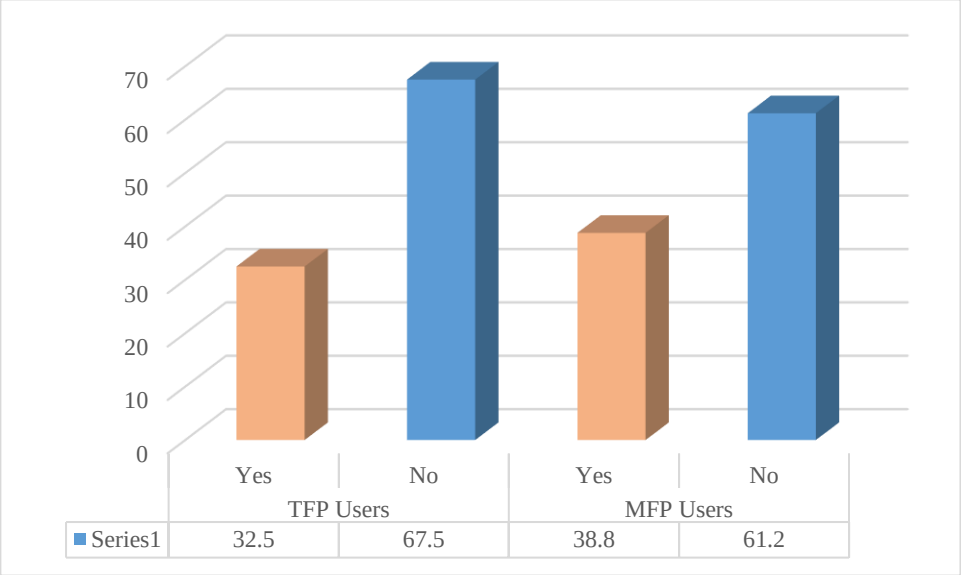

Figure 4.12: Distribution of TFP Users and MFP Users by Having Advices from PHM

However, 39% among the MFP users are receiving advice from PHM while the others are not receiving advice from PHM. It shows that the majority of TFP users (67.5%) and MFP users (61.2%) are not getting any advice from PHM.

4.5.3 Attend to Well-Women Clinics

Distribution of TFP users and MFP users based on their attendance at well-women clinics is shown in table 4.8. Results revealed that nearly 53% among the TFP users do not attend well women clinics while 21.5% of TFP users are not aware of the well women clinics. However, 26% of TFP users are attending well-women clinics close to their place of residence.

Table 4.8: Distribution of TFP Users and MFP Users by Attend to Well-Women Clinics

Attend to well women Clinic	TFP Users	MFP Users
Yes	26.0	25.6
No	52.5	45.2
Not aware	21.5	29.2
Total	100.0	100.0

On the other hand, 45.2% of MFP users do not attend women clinics and nearly 30% of respondents are not aware of the clinics. However, around 26% of MFP users are attending well women clinics. It shows that MFP user's and TFP users' patterns of attending well women clinics are quite similar.

4.6 Summary of the Chapter 4

Among the family planning users in Sri Lanka, 83.7% of women are using modern family planning methods compared to the traditional family planning methods, that confirms modern family planning is popular among women in Sri Lanka. Among the traditional family planning users, rhythm method is more popular (57.1%) than the withdrawal method (34.9%).

Traditional family planning user's mean age is 37.5 years while modern family planning users mean age is 35.7 years. Traditional family planning usage is higher among women in 33-41 years (38.4%) and 42-50 years (36.2%) of older age groups. Most of the traditional family planning users (80.7%) can be identified from the rural sector than the urban sector (16.9%). Traditional family planning usage is higher (8.1%) among the women who have a degree or higher educational level.

Among the childless women, most prefer to use traditional family planning methods (27.9%) than the modern methods (18%). Among the traditional family planning user's majority (53.4%) possess a level of moderate knowledge on family planning.

Majority of traditional family planning users (87.8%) use traditional methods as a decision taken by both partners. Traditional family planning usage (6.6%) is lower among Muslim women. Highest traditional family planning usage can be seen among the Buddhists (78.8%). Majority (51.8%) of traditional family planning users belong to the highest wealth quantile.

Nearly 60% of traditional family planning users are unemployed. Traditional family planning user's exposure to family planning via digital media is very low (8%) and majority of traditional family planning users (67.5%) are not receiving any advice from the PHM regarding family planning. More than 50% of the traditional family

planning users are not attending well women clinics though 26% of traditional family planning users are attending well women clinics.

CHAPTER 5

FACTORS INFLUENCE ON USAGE OF TRADITIONAL FAMILY PLANNING VIA SEPARATE BINARY MODELS

This chapter tries to model the individual impact of variables on the dependent variable of usage of traditional family planning using the binary logistic method. For the binary logistic analysis, the dependent variable was taken as 1 = traditional family planning users (TFP) and 2 = modern family planning users (MFP). All the explanatory variables are categorical either nominal or ordinal.

The odds ratios are discussed between the levels in a given factor by exponential value taking the last reference level as the level of individual factor.

5.1 Influence of Demographic Characteristics on Usage of Traditional Family Planning Methods

5.1.1 Influence of Age of Women

Results of the binary logistic model obtained from SPSS is shown in table 5.1.

Table 5.1: Details of Coefficients of the Fitted Logistic Model

Variable	B	S.E.	Wald	df	Sig.	Odds Ratio Exp(B)
Women's Age			97.657	3	.000	
Age 42 -50 (WA1)	.417	.061	46.367	1	.000	1.517
Age 33 – 41 (WA2)	.646	.072	81.184	1	.000	1.908
Age 24 – 32 (WA3)	.641	.124	26.516	1	.000	1.898
Constant	1.278	.045	815.843	1	.000	3.588

Reference Category – Age 15-23 Overall Predictive Power = 83.7%

$$\log\frac{P(X)}{1-P(X)} = 1.278 + 0.417*(WA1) + 0.646*(WA2) + 0.641*(WA3) \text{ …….. } (5.1)$$

According to the results (table 5.1), it can be concluded with 95% confidence level that, women's age significantly influences the usage of traditional family planning

(Wald test statistic = 97.657, p = 0.00). Based on the odds ratio, it can be concluded that, the odds of the usage of traditional family planning is 1.898 times higher among women who are in age between 24 – 32 years than the women who are in age between 15 – 23 years. Furthermore, the odds of the usage of traditional family planning is 1.908 times higher among women aged 33 – 41 years and 1.517 times higher among women aged 42 – 50 years compared to the women who represent the youngest age category of 15 – 23 years.

5.1.2 Influence of Husbands' Age

Results of the logistic regression analysis shown in table 5.2 indicate that, it can be concluded with 95% confidence level that the usage of traditional family planning is significantly influenced by the husbands' age as the Wald statistic is significant (p=0.000).

Table 5.2: Details of Coefficients of the Fitted Logistic Model

Variable	B	S.E.	Wald	Df	Sig.	Odds Ratio Exp(B)
Husband's Age			46.343	2	.000	
Age 49 – 63 (HA1)	.352	.068	26.841	1	.000	1.422
Age 34 -48 (HA2)	.561	.085	43.849	1	.000	1.753
Constant	1.267	.058	472.558	1	.000	3.552

Reference Category – Age 19 - 33 Overall Predictive Power = 83.1%

$$\log \frac{P(X)}{1- P(X)} = 1.267 + 0.352*(HA1) + 0.561*(HA2) \text{ ……. (5.2)}$$

Results indicate that the odds of the usage of traditional family planning is 1.753 times higher among husbands aged in 34-48 years and 1.422 times higher among husbands aged in 49 – 63 years than the husbands aged category of 19 – 33 years. Statistically it shows that the usage of traditional family planning is increased when the husband's age progresses.

5.1.3 Influence of Marital Status

Results of the binary logistic model obtained from SPSS is shown in table 5.3.

Table 5.3: Details of Coefficients of the Fitted Logistic Model

Variable	B	S.E.	Wald	df	Sig.	Odds Ratio Exp(B)
Marital Status			14.860	2	.001	
Married or living together (MS1)	1.612	.589	7.487	1	.006	5.014
Divorce or separated (MS2)	2.737	1.007	7.390	1	.007	15.437
Constant	1.620	.026	3864.240	1	0.000	5.053

Reference Category –Widowed Overall Predictive Power = 83.7%

$$\log \frac{P(X)}{1- P(X)} = 1.620+ 1.612*(MS1) + 2.737*(MS2) \ldots\ldots\ldots\ldots (5.3)$$

According to the results of binary regression analysis, it can be concluded with 95% confidence level that usage of traditional family planning is significantly influenced (p=0.001) by the marital status of the ever-married women in Sri Lanka.

Further, odds of the usage of traditional family planning is 15.437 times higher among the women who have been divorced or separated compared to the widowed women. Supplementary analysis shows that the odds of the usage of traditional family planning is 5.014 times higher among the married or living together women than the widowed women.

5.1.4 Influence of Number of Children

Based on the binary logistic regression analysis, it can be concluded with 95% confidence level that usage of traditional family planning is significantly influenced by the number of children (p=0.000). The odds of the usage of traditional family planning by the families having 1-2 children is 5.545 times higher compared to the women with three or above children (Table 5.4).

Table 5.4: Details of Coefficients of the Fitted Logistic Model

Variable	B	S.E.	Wald	df	Sig.	Odds Ratio Exp(B)
Number of Children			142.065	2	.000	
Childless (NC1)	.488	.060	65.952	1	.000	1.629
1 -2 Children (NC2)	1.713	.161	112.509	1	.000	5.545
Constant	1.195	.051	540.013	1	.000	3.302

Reference Category –3 or above Children Overall Predictive Power = 83.7%

$$\log \frac{P(X)}{1- P(X)} = 1.195+ 0.488 *(NC1) + 1.713*(NC2) \ldots\ldots\ldots\ldots (5.4)$$

On the other hand, odds of the usage of traditional family planning is 1.629 times higher among women who are childless compared to the women who have more than three children.

5.1.5 Influence of Women's Education Level

Results of the binary logistic model obtained from SPSS is shown in table 5.5.

Table 5.5: Details of Coefficients of the Fitted Logistic Model

Variable	B	S.E.	Wald	df	Sig.	Odds Ratio Exp(B)
Women's Education			198.100	3	.000	
Degree or above (WE1)	.462	.111	17.359	1	.000	1.587
Passed G.C.E. A/Ls (WE2)	1.076	.106	102.729	1	.000	2.932
Passed grade 1 to G.C.E. O/Ls (WE3)	2.027	.326	38.550	1	.000	7.588
Constant	.780	.101	60.000	1	.000	2.181

Reference Category – Never schooling or only attended to preschool Overall Predictive Power = 83.7%

$$\log \frac{P(X)}{1- P(X)} = 0.780+ 0.\ 462* (WE1) + 1.076* (WE2) + 2.027*(WE3) \ldots\ldots (5.5)$$

According to the results, it can be concluded with 95% confidence level that the usage of traditional family planning is statistically influenced by the women's level of education as the Wald statistic is significant (p=0.000).

Based on the odds ratio, the odds of the usage of traditional family planning is 7.588 times higher among the women who have obtained education from grade 1 up to G.C.E.O/Ls than the women who have never attended school or only attended preschool (table 5.5).

Further, odds of the traditional family planning usage are 2.932 times higher among women those who have passed G.C.E. A/Ls and 1.587 times higher among women who have a degree or higher educational level than the women who have never attended school or only attended preschool.

5.1.6 Influence of Husband's Education Level

According to the results of the binary logistic regression analysis shown in table 5.6, it can be concluded with 95% confidence level that the education level of the respondent's husband is statistically influenced on usage of traditional family planning as the Wald statistic is significant (p=0.000).

Table 5.6: Details of Coefficients of the Fitted Logistic Model

Variable	B	S.E.	Wald	df	Sig.	Odds Ratio Exp(B)
Husbands' Education			160.147	3	.000	
Degree or above (HE1)	.525	.125	17.630	1	.000	1.690
Passed G.C.E. A/Ls (HE2)	1.120	.117	91.319	1	.000	3.066
Passed grade 1 to G.C.E. O/Ls (HE3)	1.433	.296	23.437	1	.000	4.190
Constant	.655	.113	33.874	1	.000	1.925

Reference Category – Never schooling or only attended to preschool Overall Predictive Power = 83.1%

$$\log \frac{P(X)}{1- P(X)} = 0.655+ 0.525*(HE1) + 1.120*(HE2) + 1.433*(HE3) \ldots\ldots\ldots (5.6)$$

According to the odds ratios, the odds of the usage of traditional family planning is 4.19 times higher among the husbands who have attended school from grade 1 to G.C.E.O/Ls and 3.066 times higher among husbands who have passed G.C.E.A/Ls than the husbands who have never attended school or only attended preschool. Further odds ratios elaborate that the odds of the usage of traditional

family planning is 1.69 times higher among those who have obtained a degree or above compared to the lowest educational category.

5.1.7 Influence of Sector

Results of the binary logistic model obtained from SPSS is shown in table 5.7.

Table 5.7: Details of Coefficients of the Fitted Logistic Model

Variable	B	S.E.	Wald	df	Sig.	Odds Ratio Exp(B)
Sector			51.449	2	.000	
Urban (RS1)	.271	.071	14.592	1	.000	1.311
Rural (RS2)	1.211	.173	49.172	1	.000	3.356
Constant	1.367	.065	445.164	1	.000	3.923

Reference Category – Estate Overall Predictive Power = 83.7%

$$\log \frac{P(X)}{1- P(X)} = 1.367+ 0.\ 271*(RS1) + 1.211*(RS2) \text{ ……... } (5.7)$$

According to the logistic regression analysis (table 5.7), it can be concluded with 95% confidence level that the sector of the respondent is statistically influenced on the usage of traditional family planning as the Wald statistic is significant (p=0.000).

Odds ratios revealed that, the odds of the usage of traditional family planning is 3.356 times higher among rural women and 1.311 times higher among urban women than the women in the estate sector.

5.1.8 Influence of Districts by Family Planning Usage

Results of the binary logistic model obtained from SPSS is shown in table 5.8.

Table 5.8: Details of Coefficients of the Fitted Logistic Model

Variable	B	S.E.	Wald	df	Sig.	Odds Ratio Exp(B)
Districts by Usage			36.932	2	.000	
High usage (DU1)	.200	.055	13.340	1	.000	1.222
Moderated usage (DU2)	1.090	.201	29.419	1	.000	2.975
Constant	1.478	.044	1125.219	1	.000	4.382

Reference Category – Low Usage Overall Predictive Power = 83.7%

$$\log \frac{P(X)}{1-P(X)} = 1.478 + 0.200*(DU1) + 1.090*(DU2) \ldots\ldots\ldots\ldots\ldots (5.8)$$

According to the analysis, it can be concluded with 95% confidence level that the usage of traditional family planning is significantly influenced by the districts by usage as the Wald statistic is significant (p=0.000) (Table 5.8).

According to the odds ratios of the analysis, it shows that the odds of the usage of traditional family planning is 2.977 times higher within the district category of moderate usage and 1.222 times higher within the district category of high usage compared to the women within the district category of lower usage.

5.1.9 Influence of Knowledge on Family Planning

According to the binary regression analysis shown in table 5.9, it can be concluded with 95% confidence level that the knowledge on family planning (P=0.000) is significantly influenced on traditional family planning usage.

Table 5.9: Details of Coefficients of the Fitted Logistic Model

Variable	B	S.E.	Wald	df	Sig.	Odds Ratio Exp(B)
Level of knowledge on FP			133.460	2	.000	
Good (FK1)	.540	.053	103.900	1	.000	1.716
Moderate (FK2)	1.599	.251	40.500	1	.000	4.950
Constant	1.345	.035	1456.799	1	0.000	3.838

Reference Category – Poor Overall Predictive Power = 83.7%

$$\log \frac{P(X)}{1-P(X)} = 1.345 + 0.540*(FK1) + 1.599*(FK2) \ldots\ldots\ldots\ldots\ldots (5.9)$$

According to the odds ratios, the odds of the usage of traditional family planning is 4.95 times higher among the women who have moderate knowledge on family planning than the women who have poor knowledge on family planning (table 5.9).

Further it can be elaborated that, the odds of the usage of traditional family planning is 1.716 times higher among the women who have good knowledge on family planning compared to the women with poor knowledge.

5.1.10 Influence of Decision to Use Family Planning

Results of the binary logistic model obtained from SPSS is shown in table 5.10.

Table 5.10: Details of Coefficients of the Fitted Logistic Model

Variable	B	S.E.	Wald	df	Sig.	Odds Ratio Exp(B)
Decision to Use FP			239.164	3	.000	
My decision (FD1)	-1.835	.161	129.981	1	.000	.160
Husbands decision (FD2)	-1.251	.126	98.957	1	.000	.286
Decision of both (FD3)	1.532	.296	26.824	1	.000	4.626
Constant	2.714	.123	490.338	1	.000	15.085

Reference Category – Decision of PHM Overall Predictive Power = 83.7%

$$\log \frac{P(X)}{1- P(X)} = 2.714 - 1.835*(FD1) - 1.251*(FD2) + 1.532*(FD3) \ldots\ldots\ldots\ldots (5.10)$$

According to the logistic regression analysis (table 5.10), it can be concluded with 95% confidence level that the usage of traditional family planning is significantly influenced by the person who took the decision to use family planning as the Wald statistic is significant (P=0.000).

The odds ratios indicate that the odds of the usage of traditional family planning is 4.626 times higher among the family planning decisions taken mutually by both partners than the family planning decision took by the public health midwife.

5.2 Influence of Socio-Economic Characteristics on Usage of Traditional Family Planning Methods

5.2.1 Influence of Ethnicity

Results of the binary logistic model obtained from SPSS is shown in table 5.11. According to the results obtained, it can be concluded with 95% confidence level that the usage of traditional family planning is significantly influenced by the ethnicity of women as the Wald statistics is significant (p=0.000).

Table 5.11: Details of Coefficients of the Fitted Logistic Model

Variable	B	S.E.	Wald	df	Sig.	Odds Ratio Exp(B)
Ethnicity			115.847	3	.000	
Sinhala (RE1)	1.005	.094	115.277	1	.000	2.732
Tamil (RE2)	.171	.105	2.652	1	.103	1.186
Muslim (RE3)	.175	.630	.078	1	.781	1.192
Constant	1.499	.028	2775.593	1	0.000	4.476

Reference Category – Burger Overall Predictive Power = 83.7%

$$\log \frac{P(X)}{1- P(X)} = 1.499 + 1.005*(RE1) + 0.17*(RE2) + 0.175*(RE3) \ldots\ldots\ldots (5.11)$$

Further odds ratios elaborate that the odds of the usage of traditional family planning is 2.732 times higher among Sinhalese women than the Burger women's usage. Notably it shows that Tamil and Muslim women's usage is statistically not significant when compared with the Burger women's usage.

5.2.2 Influence of Religion

Results of binary logistic model obtained from SPSS is shown in table 5.12

Table 5.12: Details of Coefficients of the Fitted Logistic Model

Variable	B	S.E.	Wald	df	Sig.	Odds Ratio Exp(B)
Religion			97.840	3	.000	
Buddhism (RR1)	.020	.094	.047	1	.829	1.021
Catholic (RR2)	.184	.105	3.073	1	.080	1.202
Islam (RR3)	1.036	.106	96.338	1	.000	2.818
Constant	1.519	.030	2635.782	1	0.000	4.566

Reference Category – Hindu Overall Predictive Power = 83.7%

$$\log \frac{P(X)}{1- P(X)} = 1.519+ 0.020*(RR1) + 0.184*(RR2) + 1.036*(RR3) \ldots\ldots (5.12)$$

Logistic Regression analysis indicates that (table 5.12), it can be concluded with 95% confidence level that the religion of respondents has significantly influenced on usage of traditional family planning as the Wald statistic is significant (p=0.000)

According to the odds ratio, the odds of the usage of traditional family planning is 2.818 times higher among Islamic women compared to the Hindu women's usage of traditional family planning methods.

5.2.3 Influence of Wealth Status

According to the results of the binary logistic regression analysis shown in table 5.13, it can be concluded with 95% confidence level that the usage of traditional family planning is significantly influenced by the wealth status (p=0.000) of the respondents.

Table 5.13: Details of Coefficients of the Fitted Logistic Model

Variable	B	S.E.	Wald	df	Sig.	Odds Ratio Exp(B)
Wealth quantile			196.017	2	.000	
Highest quantile (WQ1)	.831	.060	191.885	1	.000	2.296
Lowest quantile (WQ2)	.460	.070	43.088	1	.000	1.583
Constant	1.237	.038	1084.876	1	.000	3.445

Reference Category – Middle quantile Overall Predictive Power = 83.7%

$$\log \frac{P(X)}{1- P(X)} = 1.237+ 0.83*(WQ1) + 0.460*(WQ2) \ldots\ldots\ldots\ldots\ldots\ldots (5.13)$$

Further odds ratios indicate that, the odds of the usage of traditional family planning is 2.296 times higher among women those who represent the highest wealth quantile compared to the women who represent middle wealth quantile. In addition to that, the odds of the usage of traditional family planning are 1.583 times higher among women who represent lowest wealth quantile compared to the women who represent middle wealth quantile.

5.2.4 Influence of Women's Occupation

Rendering to the analysis of logistic regression shown as in table 5.14, it can be concluded with 95% confidence level that the usage of traditional family planning is significantly influenced by the women's occupation as Wald statistics is significant (p=0.000).

Table 5.14: Details of Coefficients of the Fitted Logistic Model

Variable	B	S.E.	Wald	df	Sig.	Odds Ratio Exp(B)
Women's occupation			106.612	3	.000	
Manager, professional and administrative jobs (WO1)	.311	.103	9.097	1	.003	1.365
Clerical, sales, industry and machine related workers (WO2)	.777	.084	85.311	1	.000	2.176
Unemployed (WO3)	.620	.108	33.143	1	.000	1.860
Constant	1.013	.077	171.714	1	.000	2.754

Reference Category – Eliminatory Occupations Overall Predictive Power = 83.2%

$$\log \frac{P(X)}{1- P(X)} = 1.013+ 0.311*(WO1) + 0.777*(WO2) + 0.620*(WO3) \quad \ldots\ldots(5.14)$$

According to the odds ratio, the odds of the usage of traditional family planning is 2.176 times higher among women who are employed in clerical, sales, industry and machine related areas than the women who engaged in eliminatory occupations. Further, the odds of the usage of traditional family planning is higher among women employed as managers, professionals and administrators in 1.365 times and 1.86 times higher among women who are unemployed than the women who are engaged in eliminatory occupations.

5.2.5 Influence of Husband's Occupation

Results of binary logistic model obtained from SPSS is shown in table 5.15

According to the binary logistic regression analysis (table 5.15), it can be concluded with 95% confidence level that the usage of traditional family planning is significantly influenced by the occupation of husband as Wald statistic is significant (p=0.000).

Table 5.15: Details of Coefficients of the Fitted Logistic Model

Variable	B	S.E.	Wald	df	Sig.	Odds Ratio Exp(B)
Husband's occupation			73.692	3	.000	
Manager, professional and administrative jobs (HO1)	.083	.134	.385	1	.535	1.087
Clerical, sales, industry and machine related workers (HO2)	-.245	.132	3.463	1	.063	.783
Eliminatory occupation (HO3)	-.526	.134	15.374	1	.000	.591
Constant	1.796	.124	210.289	1	.000	6.026

Reference Category – Unemployed Overall Predictive Power = 83.7%

$$\log \frac{P(X)}{1- P(X)} = 1.796 + 0.083*(HO1) - 0.245*(HO2) - 0.526*(HO3) \ldots\ldots (5.15)$$

Further, odds ratios indicate that the odds of the usage of traditional family planning is 1.087 times higher among the husbands who are engaging in managerial, professional and administrative jobs compared to the husbands who are unemployed.

5.3 Influence of Programmatic Characteristics on Usage of Traditional Family Planning Methods

5.3.1 Influence of seeking Advice from Public Health Midwife

Results of binary logistic model obtained from SPSS is shown in table 5.16

Table 5.16: Details of Coefficients of the Fitted Logistic Model

Variable	B	S.E.	Wald	df	Sig.	Odds Ratio Exp(B)
Having advices from the PHM (AP1)	.278	.055	25.323	1	.000	1.320
Constant	1.536	.032	2317.882	1	0.000	4.646

Reference Category – Not Having advices from the PHM Overall Predictive Power = 83.7%

$$\log \frac{P(X)}{1- P(X)} = 1.536+ 0.278*(AP1) \ldots\ldots\ldots\ldots... (5.16)$$

According to the logistic regression analysis (table 5.16), it can be concluded with 95% confidence level that seeking advice from PHM has significantly influenced

the usage of traditional family planning as the Wald statistics is significant (p=0.000).

It can be described by the odds ratios that the odds of the usage of traditional family planning is 1.32 times higher among those who are not seeking advice from PHM compared to the women who are having advice from PHM.

5.3.2 Influence of Exposure to Family Planning via Electronic Media

According to the binary logistic regression results shown in table 5.17, it can be concluded with 95% confidence level that the usage of traditional family planning is significantly influenced by the exposure to family planning via electronic media as the Wald statistic is significant (p=0.000).

Table 5.17: Details of Coefficients of the Fitted Logistic Model

Variable	B	S.E.	Wald	df	Sig.	Odds Ratio Exp(B)
Exposure to Family Planning via Electronic Media (EE1)	.333	.052	40.915	1	.000	1.396
Constant	1.457	.037	1541.729	1	0.000	4.291

Reference Category – Not Exposure to Family Planning via Electronic Media
Overall Predictive Power = 83.7%

$$\log \frac{P(X)}{1-P(X)} = 1.457 + 0.333*(EE1) \quad \ldots\ldots\ldots\ldots\ldots (5.17)$$

Odds ratio shows that, the odds of the usage of traditional family planning is 1.396 times higher among the women who are having an exposure to family planning via electronic media compared to the women those who are not having any exposure to family planning via electronic media.

5.3.3 Influence of Exposure to Family Planning via Printed Media

Results of binary logistic model obtained from SPSS is shown in table 5.18

Table 5.18: Details of Coefficients of the Fitted Logistic Model

Variable	B	S.E.	Wald	df	Sig.	Odds Ratio Exp(B)
Not having Exposure to Family Planning via Printed Media (EP1)	.420	.053	63.143	1	.000	1.522
Constant	1.377	.040	1164.887	1	.000	3.961

Reference Category – Having Exposure to Family Planning via Printed Media
Overall Predictive Power = 83.7%

$$\log \frac{P(X)}{1- P(X)} = 1.377+ 0.420*(EP1) \ldots\ldots\ldots\ldots\ldots (5.18)$$

Logistic regression analysis shows that (table 5.18), it can be concluded with 95% confidence level that the usage of traditional family planning is significantly influenced by the exposure to family planning via printed media as Wald statistic is significant (p=0.000).

According to the odds ratio, the odds of the usage of traditional family planning is 1.522 times higher among the women those who are not having any exposure to family planning via printed media compared to the women who are having exposure to family planning via printed media.

5.3.4 Influence of Exposure to Family Planning via Digital Media

Results of binary logistic model obtained from SPSS is shown in table 5.19

Table 5.19: Details of Coefficients of the Fitted Logistic Model

Variable	B	S.E.	Wald	df	Sig.	Odds Ratio Exp(B)
Not having Exposure to Family Planning via Digital Media (ED1)	.654	.102	41.428	1	.000	1.922
Constant	1.021	.098	108.709	1	.000	2.775

Reference Category – Having Exposure to Family Planning via Electronic Media
Overall Predictive Power = 83.7%

$$\log \frac{P(X)}{1-P(X)} = 1.021 + 0.654*(ED1) \quad \ldots\ldots\ldots\ldots \quad (5.19)$$

According to the logistic regression analysis (table 5.19), it can be concluded with 95% confidence level that the usage of traditional family planning significantly influenced by the exposure to family planning via digital media as the Wald statistic is significant (p=0.000).

Further odds ratio reveals that, the odds of the usage of traditional family planning is 1.922 times higher among the women those who are not having any exposure to family planning via digital media compared to the women those who are having exposure to family planning via digital media.

5.3.5 Influence of Attending Well Women Clinic

According to the binary logistic regression analysis (table 5.20), it can be concluded with 95% confidence level that the usage of traditional family planning is significantly influenced by the women's attendance at the well women clinic as the Wald statistic is significant (p=0.000).

Table 5.20: Details of Coefficients of the Fitted Logistic Model

Variable	B	S.E.	Wald	df	Sig.	Odds Ratio Exp(B)
Attend to well women clinic			47.663	2	.000	
Yes (AW1)	-.133	.063	4.476	1	.034	.876
No (AW2)	.322	.075	18.436	1	.000	1.380
Constant	1.619	.051	1005.708	1	.000	5.046

Reference Category – Unaware Overall Predictive Power = 83.7%

$$\log \frac{P(X)}{1-P(X)} = 1.619 - 0.133*(AW1) + 0.322*(AW2) \quad \ldots\ldots\ldots\ldots \quad (5.20)$$

Further odds ratio elaborates that, the odds of the usage of traditional family planning is 1.38 times higher among women those who are not attending the well women clinic than the women those who are unaware of the well women clinics.

5.4 Summary of the Chapter 5

All the explanatory variables are significantly influenced individually on usage of traditional family planning, when considering the individual influence. The overall predictive power for all the individual models is more than 83% as shown in Table 5.21.

Table 5.21: Summary Table of Significant Variables

Significant Variable	Overall Predictive Power
Age of Women	83.7%
Husbands' Age	83.1%
Marital Status	83.7%
Number of Children	83.7%
Women's Education Level	83.7%
Husband's Education Level	83.1%
Sector	83.7%
Districts by Family Planning Usage	83.7%
Knowledge on Family Planning	83.7%
Decision to Use Family Planning	83.7%
Ethnicity	83.7%
Religion	83.7%
Wealth Status	83.7%
Women's Occupation	83.2%
Husband's Occupation	83.7%
Having Advices from Public Health Midwife	83.7%
Exposure to Family Planning via Electronic Media	83.7%
Exposure to Family Planning via Printed Media	83.7%
Exposure to Family Planning via Digital Media	83.7%
Attend to Well Women Clinic	83.7%

CHAPTER 6

MODELLING OVERALL IMPACT ON USAGE OF TRADITIONAL FAMILY PLANNING

In chapter 5, it was identified that, women's age, husband's age, marital Status, number of children, women's' education level, husband's education level, sector, districts by FP usage, knowledge of FP, decision to use FP, ethnicity of women, religion of women, wealth quantile, women's occupation, husband's occupation, seeking advices from PHM, exposure to FP via electronic media, exposure to FP via printed media, exposure to FP via digital media and attendance in well women clinic have significantly influenced the usage of family planning, as individual factors while other factors are fixed.

However, from a planning point of view, it is important to study all the variables simultaneously. Furthermore, when separate models were considered, interaction effects cannot be studied. Therefore, a development of binary logistic model is discussed in this chapter by considering all the variables simultaneously.

6.1 Association Between Independent variables and Usage of Traditional Family Planning

As mentioned in the above, all the explanatory variables are statistically significant according to the Wald test statistics with the P value less than 0.05 with the dependent variable. Therefore, before develop the final model with considering all the variables simultaneously, chi-square test statistics (Please refer annexure 2) have been examined (Table 6.1). Hypothesis test for the chi-square test have been taken as follows:

H_0: There is no any association between the independent variable with the usage of traditional family planning usage.

H_1: There is an association between the independent variable with the usage of traditional family planning usage.

Table 6.1: Summary Table of Chi-square Test

Category	Independent variable	Chi-square test statistics P- value (<0.05)
Demographic variables	Women's age	P = 0.000
	Husband's age	P = 0.000
	Marital Status	P = 0.000
	Number of Children	P = 0.000
	Women's' education level	P = 0.000
	Husband's education level	P = 0.000
	Sector	P = 0.000
	Districts by FP usage	P = 0.000
	Knowledge of FP	P = 0.000
	Decision to use FP	P = 0.000
Socio-economic variables	Ethnicity of women	P = 0.000
	Religion of women	P = 0.000
	Wealth quantile	P = 0.000
	Women's occupation	P = 0.000
	Husband's occupation	P = 0.000
Programmatic variables	Having advices from PHM	P = 0.000
	Exposure to FP via electronic media	P = 0.000
	Exposure to FP via printed media	P = 0.000
	Exposure to FP via digital media	P = 0.000
	Attend to well women clinic	P = 0.000

According to the table 6.1 the chi-square test statistics for the all-independent variables are significantly associated with the dependent variable of usage on traditional family planning methods. Therefore, all the explanatory variables have been used for develop the final binary logistic model.

6.2 Impact of Collinearity Among Independent Variables

In order to identify the strength of relationship between independent variables, Spearman's rank correlation have been tested. According to the obtained Spearman's correlation coefficient matrix, all the bivariate correlation among independent variables is showing a very poor relationship with the correlation values less than 0.5 and the P values less than 0.05. (Please refer the annexure 3).

Therefore, it can be concluded that, all the independent variables that are used for develop the final model are not correlated each other and therefore variance inflation factors (VIF) are not calculated for each variable.

6.3 Training the Model

The model was trained using two third of data as the sample size is large and subsequently the model was validated using the balance one third of data. Statistically significant variables for the training data set is shown in table 6.2.

Table 6.2: Statistically Significant Variables in 2/3 of the Data

Variable	**P-value**
Knowledge of FP	0.000
Good	0.000
Moderate	0.006
Having advices from PHM (No)	0.023
Decision to use FP	0.000
My decision	0.000
Husband's decision	0.000
Decision of both	0.000
Husband's occupation	0.000
Manager, professional and administrative jobs	0.020
Clerical, sales, industry and machine related workers	0.000
Eliminatory occupation	0.000
Husband's education level	0.000
Passed G.C.E A/L	0.005
Women's age	0.000
42-50	0.000
33-41	0.000
24-32	0.000
Women's' education level	0.000
Passed grade 1 to G.C.E O/L	0.028
Women's occupation	0.009
Clerical, sales, industry and machine related workers	0.039
Number of Children	0.000
Childless	0.000
1 to 2 children	0.000
Districts by FP usage	0.000
High usage districts	0.000
Moderate usage districts	0.014
Wealth quantile	0.035
Highest quantile	0.014

Overall Predictive Power = 83.4%

6.4 Validating the Model Using 1/3 of the Data

Statistically significant variables based on 1/3 of the data obtained through binary logistic regression is shown in table 6.3.

Table 6.3: Statistically Significant Variables in the 1/3 of the Data

Variable	P-value
Knowledge of FP	0.040
Attend to well women clinic	0.000
Yes	0.000
No	0.002
Decision to use FP	0.000
My decision	0.000
Husband's decision	0.000
Decision of both	0.003
Women's age	0.000
42-50	0.000
33-41	0.000
Women's occupation	0.006
Clerical, sales, industry and machine related workers	0.017
Number of Children	0.000
Childless	0.014
1 to 2 children	0.000
Districts by FP usage	0.009
High usage districts	0.002

Overall Predictive Power = 82.9%

6.5 Comparison of Significant Variables between Both Models

Statistically significant variables obtained from the 2/3 and 1/3 of the data are shown in table 6.4.

Table 6.4: Statistically Significant Variables of Both Models

Significant Variables in the 2/3 of the sample	Significant Variables in the 1/3 of the sample
Knowledge of FP	Knowledge of FP
Having advices from PHM	Attend to well women clinic
Decision to use FP	Decision to use FP
Husband's occupation	Women's age
Husband's education level	Women's occupation
Women's age	Districts by FP usage
Women's' education level	Number of Children
Women's occupation	
Number of Children	
Districts by FP usage	
Wealth quantile	
Overall Predictive Power = 83.4%	Overall Predictive Power = 82.9%

According to table 6.4 it can be seen that; same variables were not identified as significant in both training set as well as in the validation data set. Therefore, it was decided to train the model with the full set of data.

6.6 Results of the Model Using Full Data Set

The results of the final model with a full set of data are shown in table 6.5. According to the Hosmer -Lemeshow test statistics, the final fitted model is statistically significant at 5% confidence level (p= 0.233).

Table 6.5: Variables in the Equation for the Final Logistic Model

Variables	B	S.E.	Wald	df	Sig.	Exp(B)
Knowledge on FP			28.013	2	.000	
Knowledge level (1) - Good	.286	.062	21.281	1	.000	1.331
Knowledge level (2) - Moderate	.961	.296	10.556	1	.001	2.613
Seeking advices from PHM (1) - No	.219	.066	11.167	1	.001	1.245
Attend to well women Clinic			19.034	2	.000	
Attend to well women Clinic (1) - Yes	-.286	.073	15.353	1	.000	.751
Attend to well women Clinic (2) - No	-.357	.096	13.914	1	.000	.700
Religion			8.147	3	.043	
Religion category (1) -Buddhism	-.317	.117	7.322	1	.007	.728
Religion category (2) - Catholic	.173	.618	.078	1	.780	1.189
Religion category (3) - Islam	-.119	.249	.229	1	.632	.888
Ethnicity			9.209	3	.027	
Ethnicity category (1) - Sinhala	.617	.232	7.065	1	.008	1.854
Ethnicity category (2) - Tamil	-.327	.620	.279	1	.598	.721
Ethnicity category (3) - Muslim	.807	.685	1.390	1	.238	2.242
Decision to use FP			212.262	3	.000	
Decision to use FP category (1) - My decision	-1.920	.179	115.566	1	.000	.147
Decision to use FP category (2) - Husband's decision	-1.225	.137	79.846	1	.000	.294
Decision to use FP category (3) - Decision of both	1.450	.302	23.093	1	.000	4.264
Husband's occupation			11.143	3	.011	

Table Continued….						
Husband's occupation category (1) - Manager, professional and administrative jobs	-.215	.142	2.287	1	.130	.807
Husband's occupation category (2) - Clerical, sales, industry and machine related workers	-.325	.138	5.590	1	.018	.722
Husband's occupation category (3) - Eliminatory occupation	-.416	.143	8.483	1	.004	.660
Women's Age			55.468	3	.000	
Women's Age category (1) - 42-50 years	.397	.081	23.728	1	.000	1.487
Women's Age category (2) - 33-41 years	.850	.116	53.355	1	.000	2.339
Women's Age category (3) - 24-32 years	.632	.182	12.023	1	.001	1.881
Women's occupation			19.020	3	.000	
Women's occupation category (1) - Manager, professional and administrative jobs	-.097	.125	.594	1	.441	.908
Women's occupation category (2) - Clerical, sales, industry and machine related workers	.222	.109	4.162	1	.041	1.248
Women's occupation category (3) - Eliminatory occupation	-.043	.137	.101	1	.751	.958
Women's education level			13.698	3	.003	
Women's education level (1) - Degree & above	.077	.142	.293	1	.588	1.080
Women's education level (2) - Passed G.C.E A/L	.322	.154	4.393	1	.036	1.380
Women's education level (3) - Passed grade 1 to G.C.E O/L	.890	.398	5.009	1	.025	2.436
Number of children			62.699	2	.000	
Number of children category (1) - Childless	.352	.071	24.723	1	.000	1.423
Number of children category (2) - 1 to 2 children	1.382	.184	56.615	1	.000	3.983
Districts by FP usage			28.742	2	.000	
Districts by FP usage category (1) - High usage	.334	.064	27.033	1	.000	1.396
Districts by FP usage category (2) - Moderate usage	.570	.228	6.257	1	.012	1.769
Wealth Quantile			8.854	2	.012	
Wealth Quantile category (1) - Highest quantile	.213	.079	7.302	1	.007	1.237

Table Continued…. Wealth Quantile category (2) - Lowest quantile	.185	.081	5.216	1	.022	1.204
Constant	.937	.281	11.095	1	.001	2.552

Hosmer and Lemeshow Test Statistics: x_8^2= 10.483 (p= 0.233)

Table 6.5 shows that, the independent variables identified as the knowledge on FP, seeking advice from PHM, attendance in well women clinic, religion, ethnicity, decision to use FP, husband's occupation, women's age, women's occupation, women's education level, number of children, districts by FP usage and wealth quantile are significantly associated with the usage of traditional family planning when all the variables are considered simultaneously.

However, when the significant variables in the model are compared to the full data set and model with 2/3 of data, it can be seen that all the same variables are significant in both models other than religion and ethnicity which do not appear to be not significant in 2/3 of the data set.

Table 6.6: Classification Table of the Final Model

Observed		**Predicted**			
		Using Traditional FP			Percentage Correct
		Yes	No	Total	
Using Traditional FP	Yes	57	1562	1619	3.5%
	No	80	7892	7972	99.0%
Total		137	8454	9591	
Overall Percentage					82.9

Results in table 6.6 shows that, overall predictive power of the model fitted for whole data set is 82.9%.

According to the results of Cox and Snell R square and Negelkerke R square, the explained variation in the dependent variable based on the final model varies between 10% to 16.8%. It was thus revealed that the percentage of variance in

relation to the dependent variable has been explained by the final fitted model (table 6.7).

Table 6.7: Model Summary

-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
7696.924[a]	.100	.168

6.6.1 Final Model

Based on the SPSS output the final binary logistics model is given in (6.1),

$$\log \frac{P(X)}{1- P(X)} = 0.937 + 0.286*\text{Knowledge level(FK1)} + 0.961*\text{Knowledge level(FK2)} + 0.219*\text{Seeking advices from PHM(AP1)} – 0.286*\text{Attend to well women Clinic(AW1)} – 0.357*\text{Attend to well women Clinic(AW2)} – 0.317*\text{Religion (RR1)} + 0.617*\text{Ethnicity(RE1)} – 1.920*\text{Decision to use FP(FD1)} – 1.225*\text{Decision to use FP(FD2)} + 1.450*\text{Decision to use FP(FD3)} – 0.325*\text{ Husband's occupation(HO2)} – 0.416*\text{Husband's occupation(HO3)} + 0.397*\text{Women's Age(WA1)} + 0.850*\text{Women's Age(WA2)} + 0.632*\text{Women's Age(WA3)} + 0.222*\text{Women's occupation(WO2)}+ 0.322*\text{Women's education(WE2)} + 0.890*\text{Women's education(WE3)} + 0.352*\text{Number of children(NC1)} + 1.382*\text{Number of children(NC2)} + 0.334*\text{Districts by FP usage(DU1)} + 0.570*\text{Districts by FP usage(DU2)} + 0.213*\text{Wealth Quantile(WQ1)} + 0.185*\text{Wealth Quantile(WQ2)} …….. (6.1)$$

Based on the equation (6.1) the model for odds ratio can be written as shown in (6.2).

$\frac{P}{1-P}$ = 2.552 + 1.331*Knowledge level(FK1) + 2.613*Knowledge level(FK2)+ 1.245* Seeking advices from PHM(AP1) + 0.751*Attend to well women Clinic(AW1) + 0.700* Attend to well women Clinic(AW2) + 0.728* Religion(RR1) + 1.854*Ethnicity(RE1) + 0.147*Decision to use FP(FD1) + 0.294*Decision to use FP(FD2) + 4.264*Decision to use FP(FD3) + 0.722* Husband's occupation(HO2) + 0.660*Husband's occupation(HO3) + 1.487* Women's Age(WA1) + 2.339*Women's Age(WA2) + 1.881*Women's Age(WA3) + 1.248*Women's occupation(WO2) + 1.380*Women's education(WE2) + 2.436*Women's education(WE3) + 1.423*Number of children(NC1) + 3.983*Number of children(NC2) + 1.396*Districts by FP usage(DU1) + 1.769*Districts by FP usage(DU2) + 1.237*Wealth Quantile(WQ1) + 1.204*Wealth Quantile(WQ2) …….. (6.2)

According to the model (6.2) good and moderate level of knowledge, not seeking advice from PHM, ethnicity of Sinhala, decision to use FP by both, women's age categories of 42- 50 years, 33- 41 years and 24- 32 years, women's occupation category of clerical, sales, industry and machine related workers, women's education levels of passed G.C.E A/L and passed grade 1 to G.C.E O/L, number of children categories of childless and 1 to 2 children, high usage and moderate usage of districts by FP usage and wealth quantile categories of highest and lowest quantile have influence positively on the odds ratio of the usage on traditional family planning.

On the other hand, attendance in well women clinics and not attending the well women clinics, religion of Buddhism, decision to use FP by women and husband and husband's occupation categories of clerical, sales, industry and machine related workers and eliminatory occupation have influenced negatively on the odds ratio of using traditional family planning methods.

6.6.2 Interpretation of Model 6.2

According to the odds ratios given in the table 6.5, final model taken by the logistic regression analysis shows that, the odds of the usage of traditional family is 1.331 times and 2.613 times higher respectively among women those who have good knowledge and moderate knowledge on family planning than the women with poor knowledge when all the other variables are fixed.

The odds of the usage of traditional family planning is 1.245 times higher among women who are not seeking advice from the public health midwife compared to the women who are seeking advice while all the other variables are fixed.

The odds of the usage of traditional family planning is 0.751 times higher among women those who attend to well women clinic compared to the women who are not aware on well women clinic when all the other variables are fixed.

The odds of the usage of traditional family planning by Buddhist women is 0.728 times higher compared to the Hindu women when all the other variables in the model are fixed.

The odds of the usage of traditional family planning is 1.854 times higher among Sinhalese women compared to the Burger women when all the other variables in the model are fixed.

The odds of the usage of traditional family planning among the decision to use family planning taken by both is 4.264 times higher than the cases where the decision taken by the influence of public health midwife to use family planning while all the other variables are fixed.

The odds of the usage of traditional family planning among husbands working as a clerical, sales, industry and machine related workers and those who are working as eliminatory workers are respectively 0.722 times and 0.66 times higher compared to the husbands those who are unemployed while all the other variables in the model are fixed.

The odds of the usage of traditional family planning is 1.487 times, 2.339 times and 1.881 times higher respectively among women who are in the ages of 42- 50 years, 33- 41 years and 24- 32 years than the women who are in the ages of 15- 23 years when all the other variables are fixed in the model.

The odds of the usage of traditional family planning among women who are working as clerical, sales, industry and machine related workers are 1.248 times higher than the women who are unemployed while all the other variables in the model are fixed.

The odds of the usage of traditional family planning is 1.38 times higher among women who have passed G.C.E A/Ls and 2.436 times higher among women who have studied from grade 1 up to G.C.E O/Ls than the women those who have not attended to school or only attended pre-school while all the other variables in the model are fixed.

The odds of the usage of traditional family planning among the women those who are childless and women those who have 1 to 2 children are respectively 1.423 times and 3.983 times higher than the women those who have 3 or above children when all the other variables are fixed in the model.

The odds of the usage of traditional family planning is 1.396 times and 1.769 times higher respectively among the women those who are belongs to the districts of high usage and the women those who are belong the districts of moderate usage than the women who live in the districts of lowest usage while all the other variables are fixed in the model.

The odds of the usage of traditional family planning among women in highest wealth quantile is 1.237 times higher and 1.204 times higher among women in lowest wealth quantile than the women in moderate wealth quantile while all the other variables are fixed in the model.

6.7 Summary of the Chapter 6

It can be concluded that, same variables were not identified as significant when the model is trained using 2/3 of data and validated by 1/3 of the data. When all the variables are considered simultaneously using full set of data, knowledge on FP, seeking advice from PHM, attendance in well women clinic, religion, ethnicity, decision to use FP, husband's occupation, women's age, women's occupation, women's education level, number of children, districts by FP usage and wealth quantile have significantly influenced the usage of traditional family planning. The overall predictive power of the final model is 82.9%. However, when the significant variables in the model are compared to the full data set and model with 2/3 of the data, it can be seen that other than religion and ethnicity, the same variables are significant in both models.

CHAPTER 7

CONCLUSIONS, RECOMMENDATIONS AND SUGGESTIONS

This study was carried out to model the significantly influential factors on the traditional family planning usage among the women in Sri Lanka, with the use of data collected by Sri Lanka Demographic and Health survey 2016. The conclusions and recommendations based on the inferences derived in Chapters 4-6 are given below along with some suggestions.

7.1 Conclusions

- Among the family planning users, 16.3% of respondents use traditional family planning methods while the rest of the 83.7% use modern family planning methods. Among the traditional family planning users, withdrawal method and rhythm method are used by 34.9% and 57.1% of respondents respectively.
- The mean age of the traditional family planning users is 37.5 years. The majority of TFP users are represented by the rural sector (80.7%). The usage of traditional family planning is higher among Sinhalese (85%) and Buddhists (78.8%) women.
- When all the variables are considered simultaneously using binary logistic regression model, knowledge on FP, seeking advice from PHM, attendance in well women clinic, religion, ethnicity, decision to use FP, husband's occupation, women's age, women's occupation, women's education level, number of children, districts by FP usage and wealth quantile are identified as significantly associated factors with the usage of traditional family planning.
- The overall predictivity power of the final model is 82.9%.
- The odds of the usage of traditional family planning are 1.245 times higher among women who are not seeking advice from a public health midwife

compared to the women who are seeking advice while all the other variables are fixed.

- The odds of the usage of traditional family planning is 1.487 times, 2.339 times and 1.881 times higher respectively among women who are at the age of 42- 50 years, 33- 41 years and 24- 32 years than the women who are at the age of 15- 23 years when other variables are fixed.
- The odds of the usage of traditional family planning among the women who are childless and women who have 1 to 2 children are respectively 1.423 times and 3.983 times higher than the women who have 3 or more children when all the other variables are fixed.

7.2 Recommendations

- The identified factors are geared towards providing a contemporary, robust evidence base, so that key population groups in need of contraceptive services can be targeted more effectively and efficiently.
- Women in reproductive age span (15-49 years) should be made aware of family planning and sexual and reproductive health via well women clinics and specially women should be aware of the well women clinics and services provided by the well women clinics.
- The Government and Ministry of Health should pay more attention to the counselling and promotion of family planning programmes among women who use traditional family planning methods in Sri Lanka by providing them precise practical knowledge related to the use of modern methods.
- The Family Health Bureau and The Family Planning Association of Sri Lanka should organize family planning awareness programmes to be conducted by Public Health midwives to approach educated working women in Sri Lanka. It should be essential to promote awareness programmes for working women in their places of employment.

- Organize modern family planning awareness programmes and advantages of using modern family planning should be explained to the married men in the ages between 20 years to 45 years in Sri Lanka.

7.3 Suggestions

- Conducting media awareness programmes to avoid some myths on modern contraceptive methods among married women is required.
- Necessary to organize sexual and reproductive health and family planning awareness programmes for the teenage girls and boys at their schools.
- Modern family planning service providers should understand the requirements of family planning users in Sri Lanka and try to bridge the gap of family planning services by fulfilling the demand for family planning.
- New family planning interventions should be made to promote modern methods among the Sinhalese women and among the women who represent older age categories.
- Digital platforms should be created using social media such as Facebook, Instagram, Twitter and other digital media to promote accurate awareness on family planning methods amongst the general public in Sri Lanka.

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ANNEXURE 1

Sri Lanka Demographic and Health Survey 2016 – Questionnaire

*Only relevant sections of the questioner have been attached