YANGON UNIVERSITY OF ECONOMICS

DEPARTMENT OF STATISTICS

FACTORS INFLUENCING CONTRACEPTIVE USE AMONG CURRENTLY MARRIED WOMEN AGED 15-49 IN MYANMAR

BY

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M.Econ (Statistics)

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NOVEMBER, 2019

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Thesis submitted as a partial fulfillment towards

the Degree of Master of Economics.

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This thesis is submitted to board of Examination as partial fulfillment of the requirement for degree of M.Econ (Statistics).

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This is certify that the thesis entitled **"FACTORS INFLUENCING CONTRACEPTIVE USE AMONG CURRENTLY MARRIED WOMEN AGED 15-49 IN MYANMAR"** submitted as a partial fulfillment towards the requirements of Master of Economics (Statistics) has been accepted by the Board of Examiners.

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ABSTRACT

This thesis attempts to investigate the factors affecting contraceptive use of non-pregnant currently married women age 15-49 years in Myanmar. Data on contraceptive use and influencing factors were obtained from 2015-2016 Myanmar Demographic and Survey (MDHS 2015-2016). In this study, two approaches were used: descriptive analysis and multinomial logistic regression analysis. According to the results of descriptive statistics, 1.3% of women use traditional method and 51% of women use modern method. 63.4% of women belonged to the age group 20 to 39 years. Nearly seventy percent of the respondents resided in rural areas. Among the currently married women, one-fourth of women had two living children. Most of the women and husband had primary education level. More than sixty percent of currently married women are working. In wealth index, 21% of currently married women are in poorest condition. About 85% of women do not exposure to media. Almost all of the husbands are currently residing with wives. More than seventy percent of women are not currently breastfeeding. Multinomial logistic regression analysis was used to determine the effective factors on contraceptive use. Based on the results, woman age, place of residence, region, number of living children, woman's educational level, husband's education level, media exposure, wealth index, currently breastfeeding and currently residing with husband/partner are statistically significant on the use of contraceptive method.

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LIST OF ABBREVIATIONS

CI	Confidence Interval
FHRS	Fertility and Reproductive Health Survey
IDUS	Intrauterine Devices
LAM	Lactational Amenorrhea Method
MDHS	Myanmar Demographic and Health Survey
MLR	Multinomial Logistic Regression
MOHS	Ministry of Health and Sports
OLS	Ordinary Least Squares
RH	Reproductive Health
RHCs	Rural Health Centers
RRR	Relative Risk Ratio
UNFPA	United Nations Population Fund
WHO	World Health Organization

CHAPTER I
INTRODUCTION

1.1 Rationale of the Study

Contraception is generally defined as the intentional prevention of conception. It is one of the proximate determinants of fertility and the most important predictor of fertility transition and also called birth control or family planning. Contraceptive use helps couples and individuals realize their basic right to decide freely and responsibly if, when and how many children to have. It can be characterized in terms of both prevalence of different contraceptive methods and specific characteristic of acceptors which differentially influence use of different contraceptive methods. The growing use of contraceptive methods has resulted is not only improvements in health related outcomes such as reduced maternal mortality and infant mortality but also improvements in schooling and economic outcomes, especially for girls and women.

Globally, millions of women in developing countries who would like to postpone or avoid pregnancy but not use any contraception methods. Various research findings showed that a woman may not use or even not want to use contraceptives because of disapproval of the husband, fear of side effects, unavailability of contraceptives. Consequently, according to the World Health Organization (WHO), 21.6 million women experience an unsafe abortion worldwide each year – 18.5 million of whom are in developing countries – while 47,000 women die from complications of such terminations each year. In Southeast Asia region, a woman has one in 35 chance of death in her life time due to the consequences of unsafe abortion, pregnancy or delivery. Many of these deaths could be prevented if the information on family planning and contraceptives was available and put into practice. Giving women access to voluntary family planning is one of the most effective ways to combat maternal death. When women can access contraceptives, they can avoid unintended pregnancy and related risks including unsafe abortion. Therefore, Contraception has direct health benefits on maternal and child health.

In Myanmar, contraception is legal and many monks teach that is does not breach Buddhist beliefs. However, it remains subject to a number of cultural taboos, particularly for women. In the fiscal year 2012-2013, Myanmar's Ministry of Health and Sports (MOHS) committed USD $1.29 million for the purchase of contraceptives

during the 2012-2013 financial period. The Government of Myanmar's investment to reproductive health (RH) commodities increased to 2.7 million US Dollars in 2016-2017. In 2017, United Nation Population Fund (UNFPA) provided 46 % of all contraceptives in the Myanmar public health system.

According to the 2007 Fertility and Reproductive Health Survey (FHRS), the contraceptive prevalence rate for modern method was only 38.4% in 2007, the unmet need for family planning was estimated at 24.2 and nearly 5% of all pregnancies ended in abortion and abortion constitutes for almost 10% of maternal death. By 2015-2016 Myanmar Demographic and Health Survey (MDHS), knowledge of contraceptive methods is almost universal in Myanmar with 97% of all women and 95% of all men knowing at least one method of contraception. On average, women have heard of seven methods and men have heard of six methods, with most having heard about modern methods. Moreover, the contraceptive prevalence rate among currently married women aged 15-49)is 52%, with almost all women using a modern method is 51 % and using a traditional method is 1%. Myanmar's target is to increase the contraceptive prevalence rate to 60% and to reduce unmet need to less than 10% by 2020 (UNFPA Myanmar Annual Report 2017).

Studies in developing countries, the contraceptive use are influenced by various factors. In this study, determinants of contraceptive use have been classified into three categories: demographic, socio-economic and other factors. In this study, demographic factors such as age of woman, place of residence, region and number of living children were used. Socio-economic factors such as education of couples, employment status for woman, media exposure and wealth index were analyzed. Other factors such as head of household, currently breastfeeding and currently residing with husband/partner were used.

In order to study the contraceptive use in Myanmar, it is necessary to understand which demographic and socio-economic factors influence on contraceptive use there. Therefore, this study intends to investigate the factors affecting contraceptive use among non-pregnant currently married women in Myanmar.

1.2 Objectives of the Study

The objectives of the study are:

(i) To study the situations of currently married women aged 15-49 in Myanmar.

(ii) To investigate the demographic and socio-economic factors that influence on contraceptive use among currently married women aged 15-49 in Myanmar.

1.3 Method of Study

In order to investigate some demographic and socio-economic factors that influence on contraceptive use of non-pregnant currently married women in Myanmar, two approaches were be used. Descriptive methods were applied to analyze the demographic and socio-economic characteristics among currently married women aged 15-49. Multinomial logistic regression was used to investigate the influence of demographic and socio-economic factors on contraceptive use of currently married women aged 15-49 in Myanmar.

1.4 Scope and Limitations of the Study

The secondary data from 2015-2016 Myanmar Demographic and Health Survey (MDHS) was used to determine the demographic and socio-economic factors that are related to contraceptive use of currently married women (excluding pregnant women) aged 15-49 in Myanmar.

1.5 Organization of the Study

The study is organized into five chapters. Chapter I is the introduction chapter, includes the rationale of the study, objectives of the study, scope and limitations of the study, method of study and organization of the study. Chapter II represents literature review relating to factors associated with contraceptive use and conceptual framework. Chapter III presents the theoretical background of the multinomial logistic regression model. Chapter IV concerns empirical analysis of contraceptive use of currently married women in Myanmar. Finally the conclusion of the study is mentioned in Chapter V.

CHAPTER II
LITERATURE REVIEW

2.1 Introduction

This chapter presents previous literature on determinants of contraception method use. This chapter presents the specific situations of contraception in Myanmar, demographic and socio-economic determinants of contraceptive use and conceptual framework of contraceptive use.

2.2 The Specific Situations of Contraception in Myanmar

Myanmar is bounded by three of the world's most populous countries: China, India and Bangladesh. The total population of Myanmar is 59.13 million and, with an annual population growth rate of 1.29%. The total fertility rate in Myanmar was declined from 4.7 in 1987 to 2.0 in 2012 and 2.03 in 2014. While the total fertility rate is declining, trends of contraceptive prevalence rate has been progressively increasing from 16.8% in 1991 to 46% in 2012 and 52% in 2015-2016. Contraceptives are generally classified as modern contraceptive methods and traditional or natural methods. A modern contraceptive method is a product or medical procedure that interferes with reproduction from acts of sexual intercourse (Hcbacher & Trussell, 2015). According to the 2015-2016 Myanmar Demographic and Health Survey, the commonly used and available modern contraceptives in Myanmar are male and female sterilization, injectables, intrauterine devices (IDUs), contraceptive pills, implants, male condoms and the lactational amenorrhea method (LAM). Traditional contraceptive methods are periodic abstinence or rhythm, withdrawal and folkloric methods. Although no official family planning programme was launched at the mid-1970s in Myanmar, increasing fertility control within marriage is related to available of cheap contraceptives such as oral pills, injectables and the IUD through various sources. According to Trends in Contraceptive Use Worldwide 2015, the most popular method in 1991 is the oral contraceptive pills and it has become the second most popular method in 1997 and 2001. Oral contraceptive pills usage increased from four to nine percentages between 1991 and 2001. The percentage of male and female sterilization usage has declined together. For traditional methods, the prevalence rate has increased from three percentages to four percentages among the currently married

women. There is a slight increase for usage of withdrawal method. The usage of other traditional methods has decreased during 1997-2001.The results from the study done by Thuya among married couples in Hmawbe, Yangon in 2008 revealed that all of the couples had knowledge about contraceptive methods. Most of the couples knew about oral contraceptive pills and injection Depo, and condom. There were few husbands who said that traditional medicines such as Kay Thi Pan can be used as a contraceptive use and it was found that the contraceptive prevalence rate was 60.3%.

In Myanmar, region variations are quite small with respect to knowledge of contraceptive methods and their sources. While women in cities like Yangon and Mandalay have easy access to contraception, village women of Myanmar face additional hurdles. According to the reproductive health in Burma: a priority for action, the proportion of currently married women knowing any contraceptive method, any modern method and sources of moderns are the highest for Yangon Division and the lowest for Rakhine State. Contraceptive use is also low, with large regional variations; women in those area most affected by conflict are less likely to use a modern than those living in the central plains region. In Arakan (Rakhine) State, where many people are displaced from their homes or are returnees from refugee camps in Bangladesh, the contraceptive prevalence rate among married women is particularly low. The contraceptives are not widely available in government health centers and that the private sector is reported to be the main source of contraception. This was particularly relevant to women living in conflict-affected states and the border areas where private practitioners and private clinics were less likely to be available and where few international agencies were able to work.

The study of differentials in current use of contraception is important because it helps to identify subgroups of the population to target for contraceptive services. The level of current use varies significantly by women's background characteristics. The level of current contraceptive use is an obvious and widely accepted measured of achievement of reproductive health and birth spacing programmes. It is accepted that birth spacing is an important strategy to improve the status of maternal and child health.

2.3 Demographic and Socio-economic Determinants of Contraceptive Use

Many studies around the world have been found contraceptive use to be influenced by several demographic and socio-economic factors. The policy and programmatic importance of understanding the choice of contraceptive method use and the factors affecting contraceptive choice have been emphasized by recent studies (Bulatao, Palmore and Ward, 1989; Tusi and Herbertson, 1989).

2.3.1 Relationship between the Demographic Factors and Contraceptive Use

Age of Woman

Age is the demographic characteristics that influencing on the use of contraceptive. A study in Kuwait found that among the other factors, age was the associated with use of contraceptives (Rahuya et al., 2009). Another study in Oman found that age was a major influence on contraceptive use among women (M.S. Al-Balushi, M.S. Ahmed, M.M. Islam and M.H.R. Khan, 2015). Other studies by Abdul-Rahman et al., (2011) found no association between age and current use of contraceptives. Similar study by Lakew et al., 2013 stated that age had a negative relationship with use of modern contraceptives. Another study in Myanmar, Khin Thet Wai revealed that the over 20% of women in the 25 to 39 years age group were contraceptive user compared to less than 20% for those aged less than 25 and over 40 years.

Place of Residence

Place of residence is another factor found to influence contraceptive use. In a study by Lakew et al., (2013) in their finding that rural married women had 30% lower odds of using contraceptives compared to urban married women. A study by John Alate was found that place of residence was not significantly associated with contraceptive use in Ghana. Getting access to family planning massage and services can be dependent on one's place of residence. Women who live in urban areas have more access to massage on family planning as well as service provider options than those in rural areas. Urban-rural difference in the adoption of contraception is the highest in Sub Saharan Africa, where the rate is more than twice as high as among urban than among rural in all surveyed countries 28. Place of residence was also found by Abdul-Rahman et al., (2011) as a predictor of contraceptive use among

adolescents. During 1983 and 1987, a few studies in selected peri-urban and rural areas of Myanmar indicated the percent of practicing contraceptive being 16.4% and 12.3 respectively (Kyaw Tint et.al., 1985).

States and Regions

At the region level, disparity was observed among region. According to the Myanmar fertility and Reproductive Health Survey 2001, contraceptive use of modern method is highest in Yangon region (47%) followed by Bago region (37%) and Kachin/Kayah/Shan states (37%) and then Magway region has the lowest prevalence of modern contraception (22%). The use of traditional methods is most popular in Kachin/Kayah/Shan states and Magway region (6.5% and 6% receptively). Among the study in Afaganistan, Ahmad Kamran Osmani et al., found that in the east and northeast region less women like to use contraceptives relative to central region. The other study in Ghana found that regions to be significantly associated with contraceptive use.

Number of Living Children

The number of living children a woman has is also an important factor to determine the level of current contraceptive use. Number of living children is also the demographic influences of contraceptive use among women (Rahayu et al., 2009). In Malawi, a study found number of living children among the major determinants of contraceptive uptake (Palamuleni, 2013). A study shown that by Stephenson et al., (2007) that fecund women were more likely to be using modern contraceptives; women without children had lower odds of using modern contraceptives compared with those with 3 or more children. In 1987, Leoprapai and Thongthai were found that the percentage of childless Thai women practising contraceptive was low about 24 percent and the relationship between current contraceptive use and the number of living children is curvilinear.

2.3.2 Relationship between Socio-economic Factors and Contraceptive Use

Woman's Educational Level

Woman's education is a social factor that has been found in many studies to influence contraceptive use. A study among contraceptive user women in Pakistan found that education to be a powerful agent of contraceptive use and the contraceptive

use was higher among educated women compared to the uneducated (Ahmad, Babar, Afifa, & Gul, 2007). The importance of education on contraceptive use was further confirmed in a study in Tanzania which found educational level is positively influence contraceptive uptake (Michael, 2012). The higher the level of education the higher contraceptive use is expected to be.

Husband's Educational Level

Husband's education level plays a major role in their wives contraception decision. The important of education on contraceptive use was further confirmed in a study in Tanzania which found education level to positively influence contraceptive uptake (Michel, 2012). In another study conducted by Laxmi Manjeera M etal., in Mongalore showed that husband's education increased the contraceptive usage increased which was found to be statistically significant. Another study by Hossain et al., in Bangladesh, women whose husband had higher education showed slightly higher contraceptive use compared to those with an uneducated husband. A study by Vijayasre L. found that husbands' education did not have any statistically significant relation with acceptance of contraception. Similarly findings were found in studies done by S.P.Pushpa et al., in rural Karnataka, another study done by Mohanan et al., which was also conducted in Karnataka reported there was no significance between husbands' education and contraceptive usage.

Media Exposure

In developing countries, existing research on health outcomes has showed the important role of the media in disseminating information on health related issues. The sources of information are usually used: radio, television and in the newspaper or magazine. Media exposure of women to information through the radio, television and newspaper can also influence contraceptive use. A study by Stephenson et al., (2007) found that women exposed to family messages in the media were more likely to be using contraception.

Woman Currently Working Status

Economic factor is the most important influence on contraceptive use. Occupation of wife also influences their contraceptive practices as a key factor for their socio-economic status. The work status of women has also been linked to

knowledge and use of contraceptives. A study in Tanzania recorded the highest contraceptive use among women in formal employment (Michel, 2012). According to UNFPA (2017), women who work outside the home have higher rate of use than women who do not work outside home (housewife). In Bangladesh, study by Hossan et al. found that although the prevalence of contraception use did not vary by women's education, their occupation played a vital role. Therefore, employed women used more contraception compare to unemployed women.

Wealth Index

In most parts of the world, developed or developing, the possibility of using contraceptives is higher in wealthier women than the poor. A study by Lakew et al., (2013) found that wealthier women had twice higher odds of using modern contraceptives compared to poorer women. Another study has showed that the use of contraceptive is higher among wealthier young women compared to poorer women by Eko et al., 2013.

2.3.3 Relationship between the Other Factors and Contraceptive Use

Head of Household

Many studies have found that the differences between male-headed and female-headed households and health seeking behaviour. Singh (1987) said that female-headed households were the result of a husband's death, separation or employment elsewhere. A study by Hossain et al. found that women having a male household head were using more contraception than those with a female household head.

Currently Breastfeeding

Breastfeeding can be used either as a birth spacing method in its own right or it can be used as a means to delay introduction of other family member (Akter & Ahmed, 1991). Human breast milk is an ideal food for health growth and development of infants. Breastfeeding women have many birth control options. A study in Bangladesh (Hossain et al. (2018), a woman who currently breastfeeds her child was the statistically significant associated with contraceptive use. Many contraceptives can be started immediately after birth, including intrauterine devices

(IDUs), arm implants, and progestin-only pills. The most effective contraceptives are intrauterine devices (IDUs) and the arm implants.

Currently Residing with Husband/Partner

Currently residing with husband/partner has a significant influence on contraceptive use. A study was found by Hossain et al. (2018), husband currently living with wife was a significant factor associated with use of contraceptive and when husband is living with her wife have more chance to use contraceptive method. Another study in Rwanda, Habyarimana & Ramroop, (2018) were found that a woman was not residing with a husband or partner at the time of the survey was less likely to use contraceptive methods compared to a woman who was residing with husband or partner.

2.4 Conceptual Framework of Contraceptive Use

Conceptual Framework illustrates the factors such as demographic, socio-economic and other factors that influence on contraceptive use. In this study, contraceptive use was used as dependent variable and demographic, socio-economic and other factors were considered as independent variables. In demographic factors such as age of women, place of residence, region and number of living children was used in this study. Woman's education level, husband's education level, media exposure, woman currently working status and wealth index were used as socio-economic factors. In other factors, head of house of household, currently breastfeeding and currently residing with husband/partner were used in this study.

Figure (2.1) presents the conceptual framework for factors influencing contraceptive use among currently married women aged 15-49 in Myanmar.

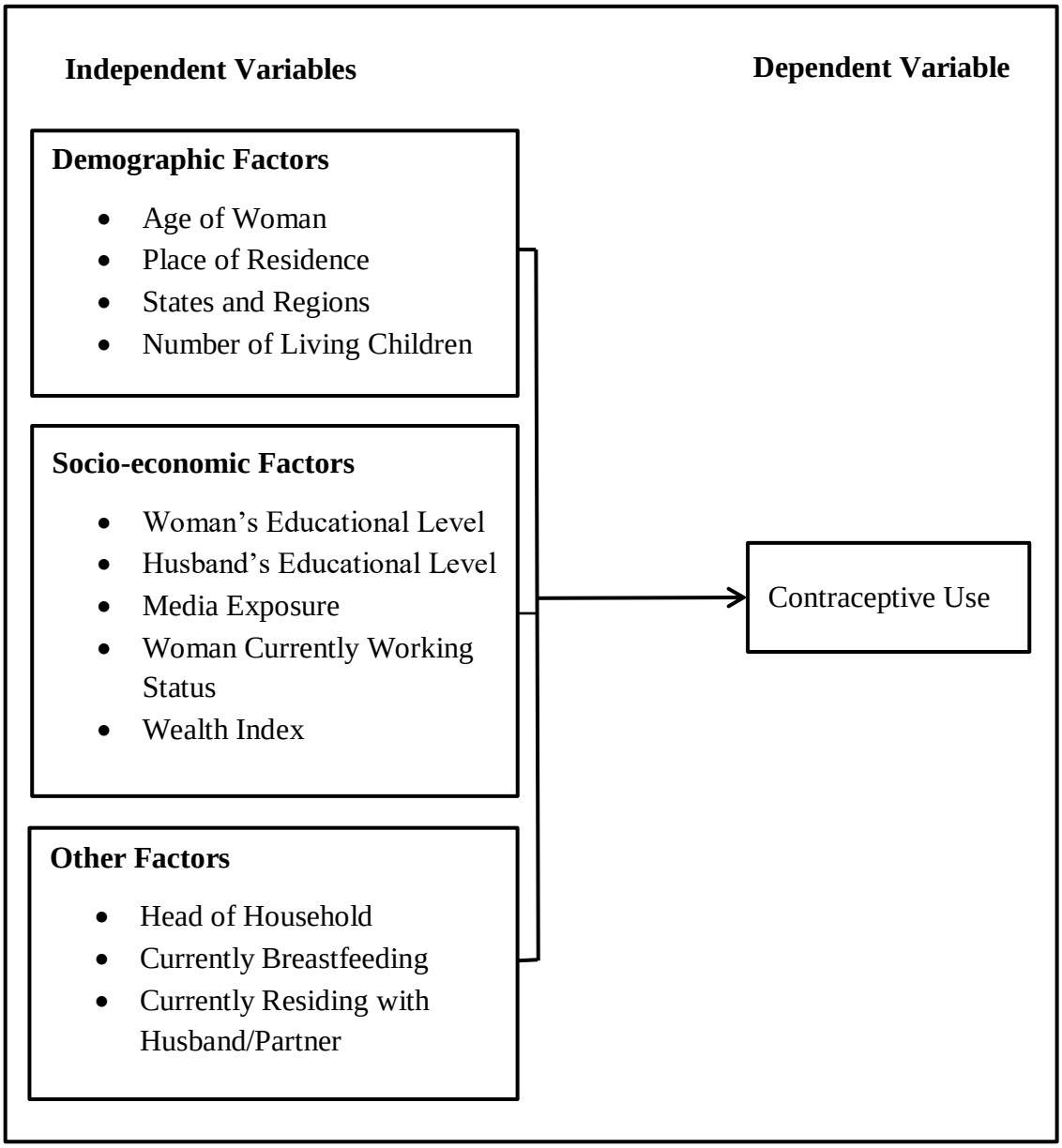

Figure (2.1) Conceptual Framework for Factors Influencing Contraceptive Use among Currently Married Women Aged 15-49 in Myanmar.

Source: Author's Own Compilation (2019)

CHAPTER III
THEORICAL BACKGROUND

3.1 Introduction

In recent years, specialized statistical methods for analysed categorical data have increased. Regression analysis is one of these statistical tools that utilize the relationship between two or more variables. It is the name of a set of techniques that attempts to predict one variable called response variable from another variable, or set of variables called explanatory variables or predictor variables. This tool can serve three major purposes: prediction, explanation, control, as the regression equation can be used to predict an individual's score on the outcome variable of interest, and can explain why certain events occurred, based on their relationship, and to control for other variables.

The regression models can be divided into two groups, the first related to linear relationship models, and the second related to non-linear relationship models. The linear models, considered up to this point, are satisfactory for most regression applications. Nonlinear model used when the linear model is not suitable anyhow. The model is considered a linear if the parameters can presented by linear relationship, and it is not necessary include first order model but also it can be more complex models. Many of statisticians believe that the logistic regression model is one of the important models can be applied to analyse a categorical data.

3.2 Multinomial Logistic Regression Model

The multinomial logistic regression is a simple extension of binary logistic regression. Multinomial logistic regression analysis requires that the response variable be dichotomous, nominal and ordinal level. The explanatory variables can be either dichotomous (i.e., binary) or continuous (i.e., interval or ratio is scale). The multinomial logistic regression can be used to predict a response variable on the basis of continuous and/or categorical explanatory variables to determine the percent of variance in the response variable explained by the explanatory variables; to rank the relative importance of independents to assess interaction effects; and to understand the impact of covariate control variables. The multinomial logistic regression compares multiple groups through a combination of binary logistic regressions. To

construct the logits in the multinomial case, one of the categories must be considered the base level and all the logits are constructed relative to it. Any category can be taken as the base level, because there is no ordering. The minimum number of cased per explanatory variable is 10, using a guideline provided by Hosmer and Lemeshow, authers of Applied Logistic Regression, one of the main sources for Logistic Regression. Multinomial logistic regression allows the simultaneous comparison of more than one contrast, that is, the log odds of three or more contrasts are estimated simultaneously, Garson (2009). Multinomial logistic regression is also known as the polytomous or multiclass logistic regression method.

In multinomial logistic regression model, the response variable does not need to be normally distributed but it does assume that distribution is within the range of the exponential family of distributions. Homogeneity of variance assumption does not need. Normally distributed error terms are not assumed. The error terms are assumed to be independent, violations of this assumption can have serious effects. There is no multicollinearity. The problem of multicollinearity will occur in logistic regression, as it does in OLS regression, as the explanatory variables increase in correlation with each other, the standard errors of the logit (effect) parameters will become inflated. Multicollinearity does not change the estimates of the coefficients, only their reliability. There are no outliers. Outliers can affect results significantly, outlets standard residual should be analyzed and removing or modeling them separately. Sampling adequacy: goodness-of-fit measures like chi-square model assume that for cells formed by the categorical independents, all cell frequencies are more than or equal 1 and no more than 20% of cells are less than 5, Garson (2009).

Let us assume that we have k-explanatory variables (they may be continuous and/or categorical) and outcome variable Y with J nominal categories. Then, the multinomial logistic regression model may be presented as:

$$\text{Logit } (Yj) = \ln\left[\frac{P(Y=j\,|\,X)}{P(Y=J/X)}\right] = \beta_{j0}+\beta_{j1}X_1+\beta_{j2}X_2+\ldots+\beta_{jK}X_K$$

where j= 1,2,…,J-1.

Each of them is a linear function that models the logarithm of probability as having response j to baseline category J (Agresti, 2002). All logits are defined relative to such a predetermined baseline category. It is important to point out that, because they are unordered, any of the J categories can be taken as the reference outcome (El-Habil, 2012). Logit coefficient (β_{jk}) provides information on how great a change in

the logit is made by a one unit increase of the value of k-th predictor (while the values of the other variables remain unchanged). The relative risk ratio (RRR) is used the most commonly for the interpretation of the model.

$$\frac{P(Y=j/X)}{P(Y=J/X)} = \exp\left(\beta_{j0}+\sum_{k=1}^{K}\beta_{jk}X_k\right)$$

RRR is an exponential function of regression coefficients. RRR greater than 1 means that the probability of occurrence of j-th category is greater than the probability of obtaining reference category J. Due to the fact that the sum of all probabilities P(Y=j/X), where j=1,2,…,J, equal one, it is easy to establish that:

$$P(Y=j/X) = \frac{\exp(\beta_{j0}+\beta_{j1}X_1+\beta_{j2}X_2+\cdots+\beta_{jK}X_K)}{1+\sum_{j=1}^{J-1}\exp(\beta_{j0}+\beta_{j1}X_1+\beta_{j2}X_2+\cdots+\beta_{jK}X_K)}$$

$$P(Y=J/X) = \frac{1}{1+\sum_{j=1}^{J-1}\exp(\beta_{j0}+\beta_{j1}X_1+\beta_{j2}X_2+\cdots+\beta_{jK}X_K)}$$

Parameters β_{jk} Ij=1,2,…, J; k=1,2,…,K) are estimated using the maximum likelihood method.

3.3 Some Measures of Fitting the Model

The Goodness-of-Fit of Multinomial Logistic Regression Model

After selecting a preliminary model, we obtain further insight by switching to a microscopic mode of analysis, such diagnostic analyses may suggest a reason for the lack of fit, such as nonlinearity in the effect of an explanatory variable. Two tests can be used to chick the goodness-of-fit, Pearson chi-square test for goodness-of-fit and likelihood ratio test. Both are chi-square methods, the Pearson statistic is based on traditional chi-square, and the likelihood ratio test statistic is based on likelihood ratio chi-square. The likelihood ratio test is preferred over the Pearson. Either test is preferred over classification tables when assessing model fit. Both tests usually yield the same substantive results, Garson (2009).

Pearson Chi- square Test as Goodness-of-Fit

Karl Pearson developed the goodness-of-fit to determine whether observed distributions of frequency data fitted a theoretical distribution. By estimating the cell frequencies one would expect to observe under some theoretical distribution, one could compare the actual frequencies and calculate the difference. The smaller the difference is the better the fit. Using the test statistic and degree of freedom, we can

estimate the significance value. The assumptions underlie the test is the data must be treated as categorical. It must be mutually exclusive, non of expected values may be less than 1, and no more than 20% of expected values may be less than 5, each observation is independent of each other observation, Salkind (2007).

Wald Test

Wald test is used to test the statistical significance of each coefficients (i.e. β′s) in the logit regression model. Wald statistic follows a chi-square distribution. However, several authors have identified problems with the use of the Wald statistic. Menard (1995) has warned that for large coefficients, standard error is inflated, lowering the Wald statistic (chi-square) value. Agresti (1996) has stated that the likelihood-ratio test is more reliable for small sample sizes than the Wald test.

The test statistic is

$$W = \left[\frac{\hat{\beta}_i}{S.E\ (\hat{\beta}_i)}\right]^2$$

The Likelihood Ratio Test

In order to confirm the appropriateness of the whole model created with the use of the Multinomial Logistic Regression method, the likelihood ratio chi-square test must be performed. Test statistics is based on the difference of logarithms of the likelihood function of the reduced model with intercept only (L_0) and the fitted final model (L_1), in which p = K.(J-1) parameters are considered:

$$LR = -2(\ln L_0 - \ln L_1) \sim \chi_p^2$$

3.4 Strength of Multinomial Logistic Regression Relationship

Once the relationship is significant, the next step is to establish the strength of multinomial logistic regression relationship, multinomial logistic regression does compute correlation measure to estimate the strength of relationship (pseudo R-square measures, such as Nagelkerke's R-Square). Using the Cox and Snell R-Square and the Nagelkerke R-Square value which provide an indication of the amount of variation in the dependent variable.

Pseudo R-square

There are three pseudo R-square values can be calculated for logistic regression. Pseudo R-square does not have an equivalent to R-square in OLS

regression (the coefficient of determination). R-square summarizes the proportion of variance in the response variable associated with explanatory variables, but pseudo R-square does not means what R-Square means in OLS regression but we can use it as indicator for different areas of application. The model with the largest pseudo R-square statistic is best according to the measures; however, classification coefficients as overall affect size measures are preferred over pseudo R-square measures as they have some severe limitations for this purpose, Garson (2009).

Cox and Snell R-Square

Cox and Snell's R-Square as a transformation of the statistic of $-2\ln\left[\frac{L(M_{Intercept})}{L(M_{Full})}\right]$ is used to determine the convergence of a logistic regression. The ratio of the likelihoods reflects the improvement of the full over the intercept model (the smaller the ratio, the grater the improvement). The Cox and Snell R-Square is

$$R^2 = 1- \left[\frac{L(M_{Intercept})}{L(M_{Full})}\right]^{2/N}$$

L(M) is the conditional probability of the dependent variable given the independent variables. If there are N observations in the dataset, then L (M) is the proof N such probabilities. Thus, taking the nt^h root of the product L (M) provides an estimate of the likelihood of each Y value. Cox and Snell's pseudo R-Square has a maximum value that is not 1. If the full model predicts the outcome perfectly and has a likelihood of, Cox and Snell's R-Square will be $(1-L(M_{Intercept})^{2/N})$, which is less than one.

Nagelkerke R-Square

It adjusts Cox and Snell's so that the range of possible values extends to 1. To achieve this, the Cox and Snell R-Square is divided by its maximum possible value, $1-L(M_{intercept})^{2/N}$.

$$R^2 = \frac{\left[\frac{L(M_{Intercept})}{L(M_{Full})}\right]^{2/N}}{1-L(M_{Intercept})^{2/N}}$$

Then, if the full model perfectly predicts the outcome and has a likelihood of 1, Nagekerke R-Square will equal one.

CHAPTER IV

EMPIRICAL ANALYSIS OF CONTRACEPTIVE USE OF CURRENTLY MARRIED WOMEN IN MYANMAR

4.1 Introduction

Data from 2015-2016 MDHS were used to examine the determinants of demographic and socio-economic characteristics on contraceptive use among currently married women in Myanmar. According to this survey, interviews were successfully completed with 12,885 women. In this study, the contraceptive use of 7366 currently married women (excluding pregnant women) aged 15-49 years was analyzed by using descriptive analysis and multinomial logistic regression analysis.

4.2 Descriptive Analysis

The contraceptive use and demographic and socio-economic characteristics of women are presented in this section.

4.2.1 Contraceptive Use

The distribution of contraceptive use of currently married women is described in following Table (4.1) and Figure (4.1).

Table (4.1)

Distribution of Currently Married Women by Contraceptive Use

Method	Frequency	Percent
Non-use	3515	47.7
Traditional Method	96	1.3
Modern Method	3755	51.0
Total	7366	100.0

Data source: 2015-2016 (MDHS)

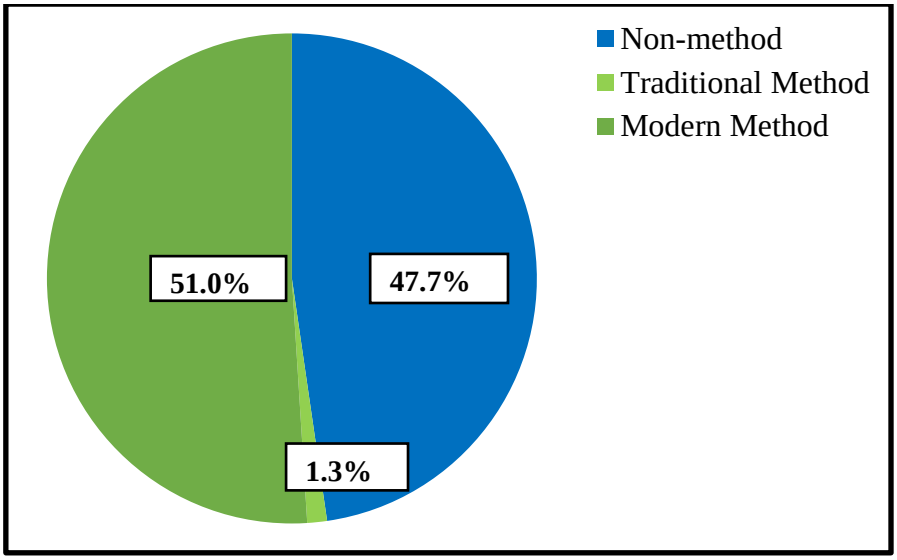

Figure (4.1) Contraceptive Use

Data Source: 2015-2016 (MDHS)

From Table (4.1) and Figure (4.1), it can be seen that 51% use modern contraceptive method, 47.7% do not use any method and only 1.3% use traditional method. Hence, nearly half of the currently married women are not using any contraceptive method and about 52% of currently married women are using both modern method and traditional method.

4.2.2 Age of Women

The distribution of age of the currently married women aged 15-49 are shown in Table (4.2) and Figure (4.2).

Table (4.2)

Distribution of Age of Currently Married Women

Age (years)	Frequency	Percent
15-19	205	2.8
20-24	733	10.0
25-29	1149	15.6
30-34	1384	18.8
35-39	1406	19.1
40-44	1299	17.6
45-49	1190	16.2
Total	7366	100.0

Data Source: 2015-2016 (MDHS)

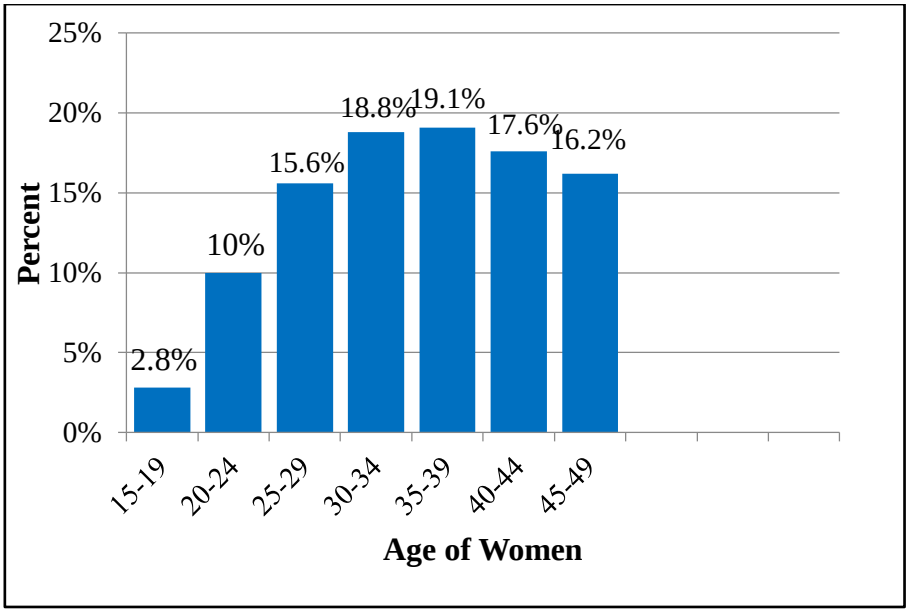

Figure (4.2) Age of Women

Data Source: 2015-2016 (MDHS)

In Table (4.2) and Figure (4.2), it is found that 63.5% of currently married women were aged 20 to 39 years, 33.8 % of them are 40-49 years and only 2.8% of those who are 15-19 years.

4.2.3 Place of Residence

There are two types of place of residence in Myanmar. The distribution of place of residence of currently married women is mentioned in Tale (4.3).

Table (4.3)

Distribution of Place of Residence

Place Of Residence	Frequency	Percent
Urban	1948	26.4
Rural	5418	73.6
Total	7366	100

Data Source: 2015-2016 (MDHS)

In Table (4.3), it can be found that nearly the three-fourth of respondents (73.6%) resided in rural area and only one-fourth of currently married women are residents of urban area.

4.2.4 States/Regions

There are seven regions, seven states and one union territory in the whole country. The following Table (4.4), the distribution of currently married women are presented by states/regions.

Table (4.4)

Distribution of States and Regions

States/Regions	Frequency	Percent
Kachin	457	6.2
Kayah	432	5.9
Kayin	458	6.2
Nay Pyi Taw	470	6.4
Sagaing	581	7.9
Taninthayi	411	5.6
Bago	562	7.6
Magway	533	7.2
Mandalay	495	6.7
Mon	445	6.0
Rakhine	491	6.7
Yangon	556	7.5
Shan	488	6.6
Ayeyarwaddy	554	7.5
Chin	433	5.9
Total	7366	100

Data Source: 2015-2016 (MDHS)

From Table (4.4), it is observed that the highest proportion of currently married women was found in Sagaing region (7.9%) and the lowest proportion was found in Taninthayi region (5.6%).

4.2.5 Number of Living Children

The distribution of living children of currently married women is presented in Table (4.5) and Figure (4.3).

Table (4.5)

Distribution of Number of Living Children

Number of Living Children	Frequency	Percent
0	708	9.6
1	1756	23.8
2	1893	25.7
3	1359	18.4
4	781	10.6
5	405	5.5
6-12	464	6.3
Total	7366	100.0

Data Source: 2015-2016 (MDHS)

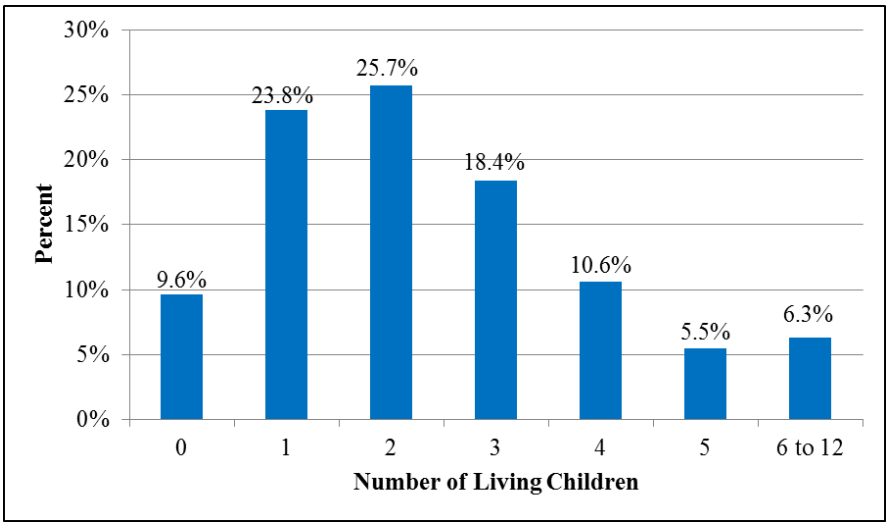

Figure (4.3) Number of Living Children

Data Source: 2015-2016 (MDHS)

In Table (4.5) Figure (4.3), it can be seen that about 10% of the currently married women had no child, 25.7% of them had two children and 23.8% of those had only one child.

4.2.6 Women's Educational Level

The distribution of educational levels of currently married women is presented in Table (4.6) and Figure (4.4).

Table (4.6)

Distribution of Women' Educational Level

Women' Educational Level	Frequency	Percent
Primary	3415	46.4
Secondary	2249	30.5
Higher	570	7.7
No education*	1132	15.4
Total	7366	100.0

Data Source: 2015-2016 (MDHS)

*Two missing values are included.

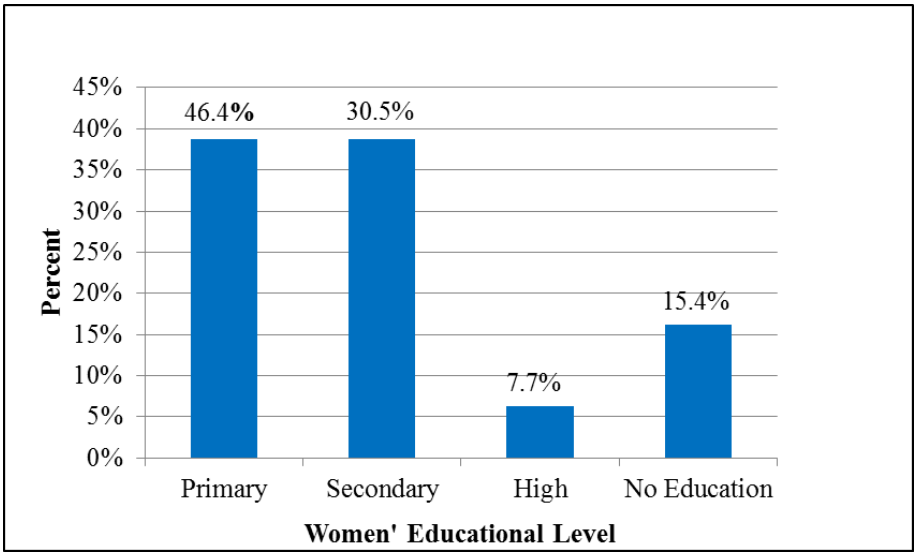

Figure (4.4) Women' Educational Level

Data Source: 2015-2016 (MDHS)

In Table (4.6) and Figure (4.4), almost half of the currently married women (46.4%) had primary educational level and only 7.7 % of currently married women had higher educational level while 15.4% of those had no education.

4.2.7 Husbands' Educational Level

The distribution of husbands' educational levels is mentioned in Table (4.7) and Figure (4.5).

Table (4.7)

Distribution of Husbands' Educational Level

Husbands' Educational level	Frequency	Percent
Primary	2858	38.8
Secondary	2850	38.7
Higher	464	6.3
No education*	1194	16.2
Total	7366	100.0

Data Source: 2015-2016 (MDHS).

*Two missing values are included.

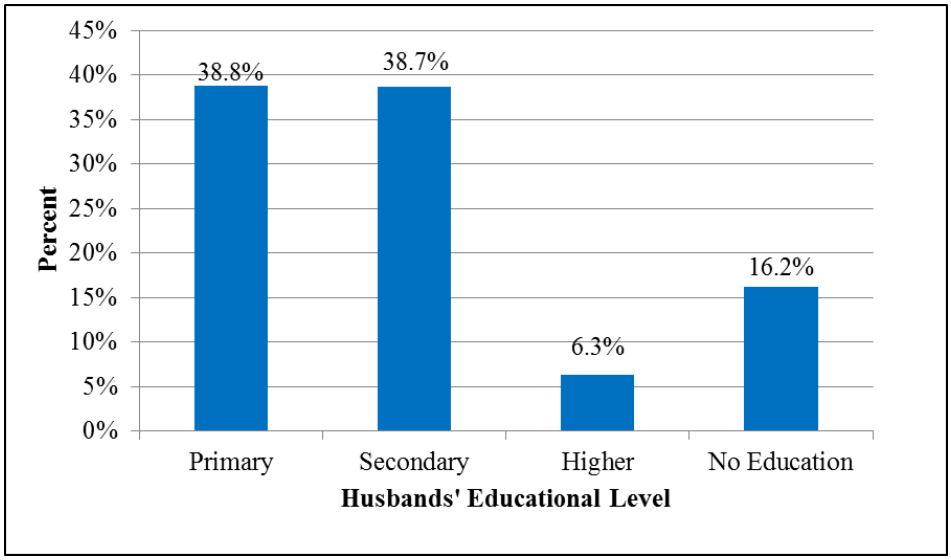

Figure (4.5) Husbands' Educational Level

Data Source: 2015-2016 (MDHS)

According to Table (4.7) and Figure (4.5), it is observed that the primary and secondary educational levels of husband are not different at 38.8% and 38.7% respectively. Only 6.3% of husband had higher educational level.

4.2.8 Media Exposure

Table (4.8) shows the distribution of currently married women's exposure to family planning messages in the media.

Table (4.8)

Distribution of Media Exposure

Media Exposure	Frequency	Percent
No*	6233	84.6
Yes	1133	15.4
Total	7366	100.0

Data Source: 2015-2016 (MDHS)

*One missing value is included.

From Table (4.8), it is reported that the minority of currently married women (15.4%) had media exposure and 84.6% of currently married women had no media exposure.

4.2.9 Women Currently Working Status

The distribution of currently working status of currently married women is shown in Table (4.9).

Table (4.9)

Distribution of Women Currently Working Status

Women Currently Working Status	Frequency	Percent
No*	2778	37.7
Yes	4588	62.3
Total	7366	100.0

Data Source: 2015-2016 (MDHS)

*Two missing values are included.

In Table (4.9), it is reported that more than half of the women are currently working and 37.7% of currently married women are not currently working.

4.2.10 Wealth Index

The wealth index quintiles of currently married women are presented in Table (4.10).

Table (4.10)

Distribution of Wealth Index

Wealth Index	Frequency	Percent
Richest	1326	18.0
Richer	1466	19.9
Middle	1514	20.6
Poorer	1514	20.6
Poorest	1546	21.0
Total	7366	100.0

Data Source: 2015-2016 (MDHS)

From Table (4.10) results, 18.0% of currently married women are in richest conditions and 21.0% of currently married women are in poorest conditions. It can be found that there is no obvious different between richer, middle and poorer quintiles (19.9%, 20.6% and 20.6%).

4.2.11 Head of Household

The distributions of head of household of currently married women are described in Table (4.11).

Table (4.11)

Distribution of Head of Household

Head of Household	Frequency	Percent
Male	6390	86.7
Female	976	13.3
Total	7366	100.0

Data Source: 2015-2016 (MDHS)

According to Table (4.11), it is found that the majority of head of household in Myanmar are male (86.7%) compared with head of household are female (13.25%).

4.2.12 Currently Breastfeeding

The distribution of currently breastfeeding of currently married women is presented in Table (4.12).

Table (4.12)

Distribution of Currently Breastfeeding

Currently Breastfeeding	Frequency	Percent
No	5426	73.7
Yes	1940	26.3
Total	7366	100.0

Data Source: 2015-2016 (MDHS).

As a result of Table (4.12), it is reported that 73.7% of currently married women are not currently breastfeeding and 36.3% of currently married women are currently breastfeeding.

4.2.13 Currently Residing with Husband/Partner

Table (4.12) presents the distribution of currently residing with husband/ partner of currently married women.

Table (4.13)

Distribution of Currently Residing with Husband / Partner

Currently Residing with Husband / Partner	Frequency	Percent
Living with her	6699	90.9
Staying elsewhere	667	9.1
Total	7366	100.0

Data Source: 2015-2016 (MDHS)

According to Table (4.13), it is found that 90.9% of husbands are currently living with wives compared to only 9.1% of husbands are currently staying elsewhere.

4.3 Multinomial Logistic Regression Analysis

This section presents the description of variables and results of multinomial logistic regression model.

4.3.1 Description of Variables

Dependent Variable

The dependent variable in this study was the use of contraceptive method. According to 2015-2016 (MDHS) women's questionnaire, there are three type of contraceptive method use: non-use of contraceptive method, traditional contraceptive method such as rhythm, withdrawal and folkloric and modern contraceptive method such as male and female sterilization, injectables, intrauterine devices (IDUs), contraceptive pills, implants, male condoms, and the lectational amenorrhea method (LAM). The categories of contraceptive use (dependent variable) were classified as follows:

Y = 0, if woman does not use any kind of contraceptive (reference category)
= 1, if woman uses traditional contraceptive method
= 2, if woman uses modern contraceptive method

Independent Variables

Demographic factors: demographic variables such as age of woman, place of residence, region and number of living children were used in this study.

X_{1i} = Woman's Age Group
= 1, if woman age group is at 15-19
= 2, if woman age group is at 20-39
= 3, if woman age group is at 40-49 (reference category)

X_{2i} = Place of Residence
= 1, Urban
= 2, Rural (reference category)

X_{3i} = States/Regions
= 1, if woman lives in Kachin
= 2, if woman lives in Kayah
= 3, if woman lives in Kayin
= 4, if woman lives in Nay Pyi Taw
= 5, if woman lives in Sagaing

= 6, if woman lives in Tanintharyi

= 7, if woman lives in Bago

= 8, if woman lives in Magway

= 9, if woman lives in Mandalay

= 10, if woman lives in Mon

= 11, if woman lives in Rakhine

=12, if woman lives in Yangon

=13, if woman lives in Shan

=14, if woman lives in Ayeyarwady

=15, if woman lives in Chin (reference category)

X_{4i} = Number of Living Children

= 0, if woman had no living children

= 1, if woman had one living child

= 2, if woman had two living children

= 3, if woman had three living children

= 4, if woman had four and more living children (reference category)

Socio-economic factors: socio-economic variables such as woman's education level, husband's education level, media exposure, woman currently working status and wealth index were used in this study.

X_{5i} = Woman's Educational Level

= 1, if woman's educational level is primary

= 2, if woman's educational level is secondary

= 3, if woman's educational level is higher

= 4, if woman's educational level is no education (reference category)

X_{6i} = Husband's Educational Level

= 1, if husband's educational level is primary

= 2, if husband's educational level is secondary

= 3, if husband's educational level is higher

= 4, if husband's educational level is no education (reference category)

X_{7i} = Woman's Exposure to Media

= 0, no

= 1, yes (reference category)

X_{8i} = Woman's Currently Working Status

= 0, if woman is no working

= 1, if woman is working (reference category)

X_{9i} = Wealth Index

= 1, richest

= 2, richer

= 3, middle

= 4, poorer

= 5, poorest (reference category)

Other factors: other factors such as head of household, currently breastfeeding and currently residing with husband/partner were considered in this study.

X_{10i} = Head of Household

= 1, if head of household is male

= 2, if head of household is female (reference category)

X_{11i} = Currently Breastfeeding

= 0, no

= 1, yes (reference category)

X_{12i} = Currently Residing with Husband/Partner

= 1, living with her

= 2, staying elsewhere (reference category)

4.3.2 Results of Multinomial Logistic Regression Analysis

The results of overall model evaluation of MLR are shown below.

Table (4.14)

Model Fitting Information for Contraceptive Use with Independent Variables

Model Fitting Criteria	χ^2 value	df	p-value
-2 Log Likelihood	1618.840	72	0.000
Cox & Snell R-Square	0.197		
Nagelkerke R-Square	0.254		
Overall Correct Prediction	68.5%		

Data source: MDHS (2015-2016)

As the results, the value of Chi-Square statistics is 1618.840 and p-value is 0.000. It can be concluded that the MLR model is significant at 1% level. Therefore, this model can be explained the association of contraceptive use and woman age, place of residence, states/region, number of living children, woman's educational level, husband's educational level, media exposure, woman currently working status, wealth index, head of household, currently residing with husband/partner, and currently breastfeeding. Cox & Snell R-Square and the Nagelkerke R-Square values are 0.197 and 0.254 respectively, suggesting that 19.7% to 25.4% of the variance in contraceptive use can be explained by variation of independent variables used in this model. Overall, 68.5% of the women are predicted correctly.

The parameter estimates for the demographic and socio-economic determinants in MLR model of contraceptive use are mentioned in Table (4.15).

Table (4.15) Parameter Estimates for the Multinomial Logistic Regression Model for Contraceptive with Independent Variables

Contraceptive Use / Variables	Traditional Method	Modern Method
Intercept	-9.449***(1.316)	-4.034***(0.216)
Age of Woman		
15-19	1.134(1.082)	2.199***(0.181)
20-39	1.065***(0.253)	1.425***(0.066)
Type of Place of Residence		
Urban	.288(.277)	.219***(.074)
States/Regions		
Kachin	2.489**(1.057)	0.665***(0.156)
Kayah	3.565***(1.041)	1.322***(0.160)
Kayin	2.085*(1.111)	1.027***(0.159)
Nay Pyi taw	3.599***(1.044)	1.545***(0.158)
Sagaing	0.287(1.426)	1.143***(0.149)
Taninthayi	1.660(1.167)	0.944***(0.160)
Bago	1.959*(1.132)	1.692***(0.152)
Magway	2.812***(1.061)	1.120***(0.153)
Mandalay	1.091(1.240)	1.442***(0.156)
Mon	1.246(1.239)	1.302***(0.160)
Rakhine	0.589(1.426)	0.943***(0.156)
Yangon	2.755***(1.058)	1.620***(0.156)
Shan	1.991*(1.142)	1.111***(0.159)
Ayeyarwaddy	0.595(1.427)	1.510***(0.152)
Number of Living Children		
0	-1.854***(0.490)	-1.709***(0.124)
1	-0.961**(0.387)	-0.332***(0.088)
2	-0.347(0.339)	0.100(0.081)
3	-0.124 (0.345)	0.181**(0.084)
Woman's Educational level		
Primary	0.490(0.449)	0.433***(0.084)
Secondary	0.784(0.489)	0.677***(0.098)
Higher	1.582***(0.566)	0.832***(0.151)

Table (4.15) Parameter Estimates for the Multinomial Logistic Regression Model for Contraceptive with Independent Variables (Continued)

Contraceptive Use / Variables	Traditional Method	Modern Method
Husband's Educational Level		
Primary	0.370(0.455)	0.255***(0.082)
Secondary	0.775*(0.466)	0.291***(0.090)
Higher	1.226**(0.563)	0.103(0.154)
Media Exposure		
No	-0.268(0.268)	-0.260***(0.076)
Woman Currently Working Status		
No	0.030(0.228)	-0.087(0.056)
Wealth Index		
Richest	0.351(0.468)	0.264**(0.113)
Richer	0.193(0.421)	0.265***(0.093)
Middle	-0.375(0.449)	0.189**(0.086)
Poorer	-0.238(0.440)	0.115(0.083)
Head of Household		
Male	0.218(0.354)	0.023(0.085)
Currently Breastfeeding		
No	1.328***(0.373)	0.131**(0.066)
Currently Residing with Husband/ Partner		
Living with her	1.090**(0.433)	1.490***(0.107)

Note: Standard errors are described in parentheses

*** denotes significant at 1% level, ** denotes significant at 5% level, * denotes significant at 10% level.

Reference category = non-use of contraceptive method

Data source: 2015-2016(MDHS).

In Table (4.15), it has been found that women currently working status and head of household were statistically insignificant for contraceptive use. Thus, model fitting information and parameter estimates of all significant effects for contraceptive use are shown in Table (4.16).

Table (4.16)

Model Fitting Information for Contraceptive Use with Significant Independent Variables

Model Fitting Criteria	χ^2 value	df	p-value
-2 Log Likelihood	1615.875	68	0.000
Cox & Snell R-Square	0.197		
Nagelkerke R-Square	0.253		
Overall Correct Prediction	68.4%		

Data source: MDHS (2015-2016)

As the results, the value of Chi-Square statistics is 1615.875 and p-value is 0.000. It can be concluded that the MLR model is significant at 1% level. Therefore, this model can explain the association of contraceptive use and women age, place of residence, states/regions, number of living children, woman's educational level, husband's educational level, media exposure, wealth index, currently residing with husband/partner, and currently breastfeeding. Cox & Snell R-Square and the Nagelkerke R-Square values are 0.197 and 0.253 respectively, suggesting that 19.7% to 25.3% of the variance in contraceptive use can be explained by variation of independent variables used in the model. Overall, 68.4% of the women are predicted correctly.

The parameter estimates for the multinomial logistic regression model for contraceptive with significant independent variables are presented in Table (4.17).

Table (4.17) Summary Results for the Multinomial Logistic Regression Model for Contraceptive Use

Contraceptive Use / Variables	Traditional Method	Modern Method
Intercept	-9.294***(1.290)	-4.056***(0.208)
Age of Woman		
15-19	1.130(1.081)	2.189***(.180)
20-39	1.058***(.252)	1.424***(.066)
Type of Place of Residence		
Urban	0.281(.277)	0.215***(.074)
Region		
Kachin	2.492 **(1.056)	0.651***(0.156)
Kayah	3.555***(1.040)	1.305***(10.159)
Kayin	2.076*(1.110)	1.003***(0.159)
Nay Pyi taw	3.605***(1.044)	1.533***(0.158)
Sagaing	0.278(1.425)	1.130***(0.149)
Taninthayi	1.656(1.167)	0.934***(0.159)
Bago	1.953*(1.132)	1.685***(0.152)
Magway	2.812***(1.061)	1.123***(0.153)
Mandalay	1.099(1.240)	1.449***(0.156)
Mon	1.250(1.239)	1.285***(0.159)
Rakhine	0.590(1.426)	0.920***(0.155)
Yangon	2.756***(1.056)	1.598***(0.155)
Shan	1.990*(1.142)	1.115***(0.159)
Ayeyarwaddy	0.593(1.427)	1.502***(0.152)
Number of Living Children		
0	-1.876***(.489)	-1.709***(.124)
1	-0.967**(.386)	-0.332***(.088)
2	-0.349(.339)	0.099(0.81)
3	-0.126(.345)	0.180**(.084)
Woman's Educational level		
Primary	0.493(.449)	0.431***(.084)
Secondary	0.785(.489)	0.673***(.098)
Higher	1.573***(.565)	0.840***(.151)

Table (4.17) Summary Results for the Multinomial Logistic Regression Model for Contraceptive Use (Continued)

Contraceptive Use / Variables	Traditional Method	Modern Method
Husband's Educational Level		
Primary	0.368(.455)	0.256***(.082)
Secondary	0.770*(.466)	0.291***(.089)
Higher	1.227**(.564)	0.104(.154)
Media Exposure		
No	-.268(.268)	-.261***(.076)
Wealth Index		
Richest	0.341(0.468)	0.262**(0.113)
Richer	0.182(0.421)	0.263***(0.093)
Middle	-0.382(0.449)	0.190**(0.086)
Poorer	-0.244(0.440)	0.114(0.083)
Currently Breastfeeding		
No	1.322***(.370)	0.149**(.065)
Currently Residing with Husband/ Partner		
Living with her	1.174***(0.412)	1.502***(0.102)

Note: Standard errors are described in Parentheses

*** denotes significant at 1% level, ** denotes significant at 5% level, * denotes significant at 10% level.

Reference category = non-use of contraceptive method

Data source: 2015-2016(MDHS).

By comparing traditional contraceptive method versus non-use of contraceptive method, woman aged at 20-39 years old is statistically significant at 1% level. The coefficient of woman aged at 20-39 years old is positive relation to traditional contraceptive method. The odds ratio for age of woman 20-39 years old is 2.880 (95% CI: 1.757 - 4.721). See in Appendix Table (A). If a subject were to increase woman aged at 20-39 years by one unit, the relative risk for using traditional method to non-method would be expected to increase by 2.880 years given the other variables the model are held constant. Generally, women aged at 20-39 years are more

likely to use traditional method over non-use of contraceptive method than women aged at 40-49 years if the other variables in the model are held constant.

It has been found that the Kayah state, Nay Pyi Taw, Magway and Yangon regions are statistically significant at 1% level and Kachin state is statistically significant at 5% level. The regions such as Kayin state, Bago region and Shan state are statistically significant at 10% level. The coefficients of all significant states/regions are positive relation to use traditional contraceptive method. The odds ratio for Kayah state is 34.987 (95% CI: 4.552 - 268.890). See in Appendix Table (A). If a subject were to increase Kayah states by one unit, the relative risk for using traditional method to non-use of contraceptive method would be expected to increase by a factor 34.987 given the other variables the model are held constant. Generally, Kayah state is more likely than Chin state to use traditional method over non- method when the other variables in the model are held constant.

It has been found that woman had no living children and woman had one living children are statistically significant at 1% level and 5% level and both of the coefficients are negative relation to traditional method. The odds ratio for woman had no living children is 0.153 (95% CI: 0.059-0.399). See in Appendix Table (A). If a subject were to increase woman had no living children, the relative risk for using traditional method to non-method would be expected to decrease by 0.153 given the other variables in the model are held constant. More generally, women had no living children are more likely than women had four and above four living children to use non-method over traditional method.

It is observed that woman's educational level at higher education level is statistically significant at 1% level. The coefficient of woman's higher educational level is positively relation to traditional contraceptive method. The odds ratio for woman's higher educational level is 4.823 (95% CI: 1.593 - 14.597). See in Appendix Table (A). It can be said that if a subject were to increase woman's higher educational level, the relative risk for using traditional method to non-method would be increased by 4.823 given the other variables in the model are held constant. Thus, women had higher educational level are more likely than women had no educational level to use traditional method.

It can be found that the husbands with secondary and higher educational level are statistically significant at 1% and 5% level. The coefficients of husbands' educational levels at secondary and higher levels are positive related to traditional

contraceptive method. The odds ratio of husband's higher educational level is 3.411 (95% CI: 1.130-10.297). See in Appendix Table (A). If a subject were to increase husband had secondary educational level by one unit, the relative risk for traditional method relative to non-method would be expected to increase by 3.411 given the other variables in the model are held constant. More generally, it can be said that husband had secondary educational level are more likely than husband had no educational level to use traditional method.

In currently breastfeeding, it was found that woman who is not currently breastfeeding is statistically significant at 1% level. The coefficient of woman who is not currently breastfeeding is positive relation with traditional contraceptive method. The odds ratio of woman who is not currently breastfeeding is 3.750 (95% CI: 1.814 - 7.752). See in Appendix Table (A). If a subject were to increase woman who is not currently breastfeeding by one unit, the relative risk for traditional method relative to non-method would be expected to increase by 3.750, given the other variables in the model are held constant. Therefore, women who are not currently breastfeeding are more likely to use traditional method to non-method than women who are currently breastfeeding.

It has been found that husband currently living with her is statistically significant at 1% level and its coefficient is positive associated with traditional contraceptive use. The odds ratio for husband currently living with her is 3.235 (95% CI: 1.443 - 7.249). See in Appendix Table (A). For husband currently living with her relative to husband staying elsewhere, the relative risk for traditional method relative to non-method would be expected to increase by 3.235 given the other variables in the model are held constant. Therefore, husband who is currently living with her are more likely than husband who is staying elsewhere to use traditional method.

By comparing modern method versus non-method, woman aged at 15-19 years old and 20-39 years old are statistically significant at 1% level and their coefficients are positive relation to modern method. The odds ratio for age of woman 20-39 years old is 4.154 (95% CI: 3.648 - 4.729). See in Appendix Table (A). If a subject were to increase woman aged at 20-39 years by one unit, the relative risk for using modern method to non-method would be expected to increase by 4.154 given the other variables the model are held constant. More generally, women aged at 20-39 years are more likely to use modern method over non-method than women aged at 40-49 years if the other variables in the model are held constant.

It can be seen that urban areas is statistically significant at 1% level. The coefficient of urban areas is positive relation to modern method. The odds ratio for place of residence as urban area is 1.239 (95% CI: 1.072 - 1.433). See in Appendix Table (A). For urban area relative to rural area, the relative risk for modern method relative to non-method would be expected to increase by 1.239 given the other variables in the model are held constant. In other world, urban areas are more likely than rural area to use modern method.

It has been found that the parameters of all states/regions are statistically significant at 1% level and their coefficients are positive relation to modern method. The odds ratio for Yangon region is 4.941 (95% CI: 3.644 - 6.700). See in Appendix Table (A). If a subject were to increase Yangon region by one unit, the relative risk for using modern method to non-method would be expected to increase by 4.941 given the other variables the model are held constant. More generally, Yangon region is more likely than Chin state to use modern method over non-method when the other variables in the model are held constant.

It was observed that woman had no living children and woman had one living children are statistically significant at 1% level and their coefficients are negative. Woman had three living children are statistically significant at 5% level and its coefficient is positively relation with modern contraceptive method. The odds ratio for woman had three living children is 1.198 (95% CI: 1.017 - 1.411). See in Appendix Table (A). If a subject were to increase woman had three living children, the relative risk for using modern method to non-method would be expected to increase by 1.198 given the other variables in the model are held constant. More generally, women had three living children are more likely than women had four and above four living children to use modern method over non-method.

It has been reported that women' educational level at primary, secondary and higher educational are statistically significant at 1% level and their coefficients are positive relation to modern method. The odds ratio for woman's higher educational level is 2.317 (95% CI: 1.724 - 3.113). See in Appendix Table (A). If a subject were to increase woman had higher educational level, the relative risk for using modern method to non-method would be increased by 2.317 given the other variables in the model are held constant. Thus, women had higher educational level are more likely than women had no educational level to use modern method over non-method.

It was found that husbands' educational level at primary and secondary levels are statistically significant at 1% level. The coefficients of husband with primary and secondary educational levels are positive related to modern contraceptive method. The odds ratio for husband's secondary educational level is 1.338 (95% CI: 1.123 - 1.594). See in Appendix Table (A). If a subject were to increase husband had secondary educational level by one unit, the relative risk for modern method relative to non-method would be expected to increase by 1.338 given the other variables in the model are held constant. More generally, we can say that husbands had secondary educational level are more likely than husbands had no educational level to use modern method.

For media exposure, it can be seen that women had no media exposure is statistically significant at 1% level and its coefficient is negative relation to modern method. The odds ratio for women had no media exposure is 0.770 (95% CI: 0.663 - 0.895). See in Appendix Table (A). For woman had media exposure relative to woman had no media exposure, the relative risk for using modern method to non-method would be expected to decrease by 0.770 given the other variables in the model are held constant. In other words, women had no media exposure are less likely than women had media exposure to use modern method over non-method.

With respect to the wealth index, it can be seen that the first and third quintiles of the wealth index are statistically significant at 5% level and its second quintile of the wealth index are statistically significant at 1% level. The coefficients are positive in relation to use modern contraceptive method. The odds ratio of woman in richest condition is 1.300 (95% CI: 1.041 - 1.622). See in Appendix Table (A). If a subject were to increase woman in richest condition by one unit, the relative risk for modern method relative to non-method would be expected to increase by 1.300 given the other variables in the model are held constant. Therefore, we can say that women in richest condition are more likely to use modern method over non-method than women in poorest condition.

It was found that woman who is not currently breastfeeding is statistically significant at 5% level and its coefficient is positive relation with modern contraceptive method. The odds ratio for woman who is not currently breastfeeding is 1.160 (95% CI: 1.021 - 1.319). See in Appendix Table (A). If a subject were to increase woman who is not currently breastfeeding by one unit, the relative risk for modern method relative to non-method would be expected to increase by 1.160, given

the other variables in the model are held constant. It was found that women who are not currently breastfeeding are more likely to use modern method over non-method than women who are currently breastfeeding.

It has been observed that husband is currently living with her is statistically significant at 1% level. Its coefficient is positive associated with modern contraceptive method. The odds ratio for husband is currently residing with living with her is 4.492 (95% CI: 3.677- 5.487). See in Appendix Table (A). If a subject were to increase husband is currently living with her, the relative risk for modern method relative to non-method would be expected to increase by 4.492 given the other variables in the model are held constant. Therefore, husband who is currently living with her is more likely than husband who is staying elsewhere to use modern method.

CHAPTER V
CONCLUSION

The study revealed the factors influencing contraceptive use among currently married women in Myanmar. An analysis was done using a sample of 7366 currently married women (excluding pregnant women) aged 15-49 years from the 2015-2016 MDHS data. Descriptive analysis and multinomial logistic regression analysis are used. Results indicated that half of the currently married women used modern contraceptive method that is higher than traditional method. It can be seen that demographic factors such as age of women, place of residence, region and number of living children are significant predictors of the use of contraceptive method in Myanmar. And also, socio-economic factors such as woman's educational level, husband's educational level, media exposure, wealth index are significant predictors of the use of contraceptive method and other factors such as currently breastfeeding and currently residing with husband/partner are significant effects on the use of contraceptive method.

In demographic factors, women aged at 20-39 years have more chance to use traditional contraceptive than women aged at 40-49 years. Women aged at 15-19 years and women aged at 20-39 are more likely to use modern method. Women in urban areas have more chance to use modern method than women in rural areas. Because women in urban area are more educated, they have better knowledge about the contraception and easy access to family planning services. Women in Kachin state, Kayah state, Kayin state, Shan state, Nay Pyi Taw region, Bago region, Magway region and Yangon region have more chance to use traditional method than Chin region. All regions have more likely to use modern method than Chin region. Both women had no living children and women had one living children have more likely to use non- method. However, women had three living children have more likely to use modern method. This is because many women in Myanmar, with more number of living children were on limit to attain their chosen family size.

In socio-economic factors, women with higher educational level have more chance to use traditional method and women with primary, secondary and higher educational level have more chance to modern method. This is because educated women can decide their relationships, bodies and their lives. Husbands with

secondary and higher educational levels have more likely to use traditional method than husband with no educational level. Husbands with primary and secondary educational level have more chance to use modern method than husbands who have no educational level. Women who have no media exposure have less chance to use modern method than women who have media exposure. Wealth index is also significant effect on contraceptive use. Women in richest, richer and middle condition have more chance to use modern method than women in poorest condition.

In other factors, women are not currently breastfeeding are positive significant effect on the use of contraceptive method. Women who are not currently breastfeeding have more chance to use both traditional method and modern method than women who are currently breastfeeding. And then, women currently residing with husband/partner are significant factors of the use of contraceptive method. Husband who are currently living with her have more chance to use both traditional method and modern method than husband who are not currently living with her.

In this study, contraceptive prevalence rate is 52.3% that is not satisfactory and it is lower than the other countries in Asia. Therefore, the government needs to hold health talk about contraception and support the provision of contraceptive services and encourage use of contraceptive by targeting married couples.

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APPENDIX

Appendix Table (A) Results of Contraceptive Use among Currently Married Women in Myanmar MDHS (2015-2016)

Contraceptive use	Variable	B	Std.Error	Wald	df	Sig.	Exp(B)	95% confidence Intreval for Exp(B)	
								Lower	Upper
Traditional Method	**Intercept**	-9.294	1.290	51.881	1	.000			
	Age of Woman								
	15-19	1.130	1.081	1.092	1	.296	3.095	.372	25.761
	20-39	1.058	.252	17.583	1	.000	2.880	1.757	4.721
	Place of Residence								
	Urban	.281	.277	1.029	1	.310	1.324	.770	2.279
	States/Regions								
	Kachin	2.492	1.056	5.572	1	.018	12.087	1.526	95.711
	Kayah	3.555	1.040	11.673	1	.001	34.987	4.552	268.890
	Kayin	2.076	1.110	3.501	1	.061	7.976	.906	70.204
	Nay Pyi Taw	3.605	1.044	11.936	1	.001	36.790	4.758	284.440
	Sagaing	.278	1.425	.038	1	.845	1.321	.081	21.577
	Taninthayi	1.656	1.167	2.016	1	.156	5.240	.532	51.564
	Bago	1.953	1.132	2.980	1	.084	7.052	.768	64.786
	Magway	2.812	1.061	7.029	1	.008	16.645	2.082	133.079
	Mandalay	1.099	1.240	.786	1	.375	3.003	.264	34.120
	Mon	1.250	1.239	1.017	1	.313	3.489	.308	39.547
	Rakhine	.590	1.426	.171	1	.679	1.804	.110	29.492
	Yangon	2.756	1.056	6.809	1	.009	15.734	1.985	124.687
	Shan	1.990	1.142	3.036	1	.081	7.318	.780	68.645
	Ayeyarwaddy	.593	1.427	.173	1	.678	1.809	.110	29.658

Appendix Table (A) Results of Contraceptive Use among Currently Married Women in Myanmar MDHS (2015-2016) (Continued)

Contraceptive use	Variable	B	Std.Error	Wald	df	Sig.	Exp(B)	95% confidence Intreval for Exp(B)	
								Lower	Upper
	Number of Living Children								
	0	-1.876	.489	14.738	1	.000	.153	.059	.399
	1	-.967	.386	6.268	1	.012	.380	.178	.811
	2	-.349	.339	1.062	1	.303	.705	.363	1.370
	3	-.126	.345	.133	1	.715	.882	.448	1.734
	Woman's Educational Level								
	Primary	.493	.449	1.201	1	.273	1.637	.678	3.950
	Secondary	.785	.489	2.578	1	.108	2.192	.841	5.714
	Higher	1.573	.565	7.753	1	.005	4.823	1.593	14.597
	Husband's Educational Level								
	Primary	.368	.455	.655	1	.418	1.446	.592	3.528
	Secondary	.770	.466	2.727	1	.099	2.159	.866	5.385
	Higher	1.227	.564	4.737	1	.030	3.411	1.130	10.297
	Media Exposure								
	No	-.268	.268	.996	1	.318	.765	.452	1.294
	Wealth Index								
	Richest	.341	.468	.530	1	.467	1.406	.562	3.522
	Richer	.182	.421	.187	1	.665	1.200	.525	2.741
	Middle	-.382	.449	.723	1	.395	.682	.283	1.647
	Poorer	-.244	.440	.308	1	.579	.783	.330	1.857

Appendix Table (A) Results of Contraceptive Use among Currently Married Women in Myanmar MDHS (2015-2016) (Continued)

Contraceptive use	Variable	B	Std.Error	Wald	df	Sig.	Exp(B)	95% confidence Intreval for Exp(B)	
								Lower	Upper
	Currently Breastfeeding								
	No	1.322	.370	12.731	1	.000	3.750	1.814	7.752
	Currently residing with Husband/Partner								
	Living with her	1.174	.412	8.129	1	.004	3.235	1.443	7.249
Modern Method	**Intercept**	-4.056	.208	380.289	1	.000			
	Age of Woman								
	15-19	2.189	.180	147.432	1	.000	8.928	6.270	12.712
	20-39	1.424	.066	462.936	1	.000	4.154	3.648	4.729
	Place of Residence								
	Urban	.215	.074	8.412	1	.004	1.239	1.072	1.433
	States/Regions								
	Kachin	.651	156	17.353	1	.000	1.917	1.411	2.604
	Kayah	1.305	.159	67.040	1	.000	3.689	2.699	5.043
	Kayin	1.003	.159	39.989	1	.000	2.726	1.998	3.719
	Nay Pyi Taw	1.533	.158	94.129	1	.000	4.633	3.399	6.316
	Sagaing	1.130	.149	57.642	1	.000	3.097	2.313	4.146
	Taninthayi	.934	.159	34.275	1	.000	2.544	1.861	3.477
	Bago	1.685	.152	122.840	1	.000	5.393	4.003	7.265
	Magway	1.123	.153	54.201	1	.000	3.073	2.279	4.144

Appendix Table (A) Results of Contraceptive Use among Currently Married Women in Myanmar MDHS (2015-2016) (Continued)

Contraceptive use	Variable	B	Std.Error	Wald	df	Sig.	Exp(B)	95% confidence Intreval for Exp(B)	
								Lower	Upper
	Mandalay	1.449	.156	86.057	1	.000	4.259	3.136	5.785
	Mon	1.285	.159	65.190	1	.000	3.615	2.646	4.938
	Rakhine	.920	.155	35.105	1	.000	2.509	1.851	3.402
	Yangon	1.598	.155	105.743	1	.000	4.941	3.644	6.700
	Shan	1.115	.159	49.015	1	.000	3.051	2.232	4.168
	Ayeyarwaddy	1.502	.152	97.509	1	.000	4.489	3.332	6.047
	Number of Living Children								
	0	-1.709	.124	190.844	1	.000	.181	.142	.231
	1	-.332	.088	14.205	1	.000	.718	.604	.853
	2	.099	.081	1.519	1	.218	1.105	.943	1.294
	3	.180	.084	4.656	1	.031	1.198	1.017	1.411
	Woman's Educational Level								
	Primary	.431	.084	26.252	1	.000	1.539	1.305	1.815
	Secondary	.673	.098	46.848	1	.000	1.959	1.616	2.376
	Higher	.840	.151	31.087	1	.000	2.317	1.724	3.113
	Husband's Educational Level								
	Primary	.256	.082	9.733	1	.002	1.292	1.100	1.517
	Secondary	.291	.089	10.577	1	.001	1.338	1.123	1.594
	Higher	.104	.154	.461	1	.497	1.110	.821	1.501

Appendix Table (A) Results of Contraceptive Use among Currently Married Women in Myanmar MDHS (2015-2016) (Continued)

Contraceptive use	Variable	B	Std.Error	Wald	df	Sig.	Exp(B)	95% confidence Intreval for Exp(B)	
								Lower	Upper
	Media Exposure								
	No	-.261	.076	11.669	1	.001	.770	.663	.895
	Wealth Index								
	Richest	.262	.113	5.361	1	.021	1.300	1.041	1.622
	Richer	.263	.093	7.987	1	.005	1.301	1.084	1.562
	Middle	.190	.086	4.816	1	.028	1.209	1.020	1.432
	Poorer	.114	.083	1.902	1	.168	1.121	.953	1.318
	Currently Breastfeeding								
	No	.149	.065	5.198	1	.023	1.160	1.021	1.319
	Currently residing with Husband/Partner								
	Living with her	1.502	.102	216.216	1	.000	4.492	3.677	5.487

Data Source: 2015-2016 (MDHS)