



Analysis Of Socio-Economic Determinants Of Contraceptive Use Among Married Women In Maiduguri Metropolitan Council- Borno State, Nigeria

¹Daniel Ibrahim Mbaya, ²Baba Shettima Nur & ³Kaka Mai Bukar

¹*Department of Economics, University of Maiduguri*

^{2&3}*Department of Economics, Borno State University*

Abstract

The study examined socio-economic factors that determine the use of contraceptives among married women in Maiduguri Metropolitan Council (MMC) of Borno state, Nigeria. The main objective of the study was to identify the social and economic variables that influence married women's decision to use contraceptive methods in the study area. Questionnaire was used to collect data through purposive sample of 384 married women in the study area. Three hundred and eighty-four (384) questionnaires were administered but only three hundred and fifty-six (356) were retrieved, making 93% return rate. The study employed descriptive (frequency counts and percentages) and inferential statistics (multiple regression) for data analysis. The study findings show a number of factors influencing married women's use of contraceptives. These including age, income, women's work, education level, number of children, experience, religious and culture. The study concluded that religious and culture have negative influence towards the use of contraceptives while age, income, women's work, education level, number of children and experience have positive effects towards the use of contraceptives among married women in Maiduguri Metropolitan Council. The study recommended that Borno State Ministry of Health should employ socioeconomic characteristics for targeted interventions, as they are the factors that determine the use of contraceptives among married women in the study area.

Keywords: *Socioeconomic factors, Contraceptive, married women, Maiduguri, Inferential statistics.*

Background to the Study

The main idea behind contraception use is to consciously attempt to avoid getting pregnant using whatever means possible, including hormonal, barrier, or sterilization techniques. Recently, the prevention of sexually transmitted diseases (STDs) has been achieved with the use of several barrier contraceptives. Nonetheless, preventing unintended pregnancy is the fundamental goal of contraception. Put differently, birth control is at the core of the contraception concept. Scientifically, birth control refers to the process of preventing a female XX cell (egg) from fertilizing a male XY cell (sperm) and/or from implanting in the uterus by the use of contraception (Imongan, 2008). There are many different approaches to select from, but women have more alternatives than males do. But choosing a method is a personal choice that considers a variety of aspects, such as side effects, ease, and dependability (WHO, 2018). World over it is estimated that 2.5 new individuals are added to the global population every second (Imongan, 2008). This suggests that 79 million new people are added to the global population each year. According to World Health Organization (2022), 380 women worldwide become pregnant every minute (190 of them did not intend to become pregnant), 110 experience complications related to their pregnancy, 40 have unsafe abortions, and one dies from a pregnancy-related cause. According to Asiedu (2020) in developing nations, the use of contemporary contraceptive methods has been promoted to reduce fertility rates, slow population growth, empower women, especially those who are childbearing, improve their health, and foster socioeconomic development. Furthermore, birth control has become increasingly necessary because women and girls especially those who have become mothers, stay in school become literate, learn a trade, start a business or otherwise achieve their educational and employment goals (UNESCO, 2018). In addition, the government has subsidized contraceptives to some extent that average married women can afford them. Similarly, donor organizations and the international community have focused more on providing contraceptives for family planning and birth control recently, including the World Health Organization (WHO) and the United States Agency for International Development (USAID). The core reason for all of these efforts to promote the use of contraceptives is the detrimental effects of an unchecked birth rate, which also has an impact on the economy.

Federal Government of Nigeria had approved population policy for development, unity, progress, and self-reliance. These have taken the shape of public awareness campaigns stressing the value of using contraceptives for family planning, disseminated through newspaper articles, radio and television commercials, and other media outlets (NDHS 2018). Married women in Borno State and the surrounding government-owned institutions are entitled to free clinical advice and counseling regarding the advantages and applications of several forms of birth control. Marie Stopes International Organization Nigeria (MSION) has trained local health workers in the Maiduguri Metropolitan Council (MMC) to provide sexual and reproductive health services to internally displaced people (IDPs) and residents. This involves preparing public sector health workers to offer comprehensive family planning, which includes a variety of contemporary methods and counseling (WHO, 2022).

Borno State government through Ministry of Health, have led the way in encouraging married women to take contraceptives to reduce the country's birth rate. However, married women may be socially discouraged from using contraceptives due to perceived or religious beliefs. The degree of education and social standing may have a major role in determining the amount of this influence. Further, married women may also believe that family planning contraceptives are pricey and only available to the wealthy. Married women are subject to a variety of social and economic circumstances that influence their decision to use contraceptives or not for birth control. The degree of interaction among women in ceremonial settings frequently affects the usage of contraceptives, and in certain situations, women's dread of their husbands' reactions also discourages use. Rahaman et al (2022) and Mudi et al (2023) argued that most literature on contraceptive use focused on the medical dimension and government intervention effort. As such, not much has been done to indicate the influence of some socio-economic factors such as educational level, religious, cultural factors, occupation, income level and age limits to the use of contraceptives in study area. Despite government efforts in campaigns to raise public knowledge and the accessibility, cost of these contraceptive options in public hospitals, the rate of contraceptive use remained low. Against this backdrop, the main goal of this research is to identify the social and economic variables that influence married women's decision to use contraceptive methods in Maiduguri Metropolitan Council.

Literature Review

Conceptual Issues

Concept of Contraception

Contraception has been defined in various ways by different Organization and researchers. The world health organization (WHO) defines contraception as the use of methods, devices, or medications to prevent pregnancy (WHO, 2018). The Lancet defines as the intentional use of physical, chemical, or biological method to prevent pregnancy (Cleland et al, 2019). In another way centers for disease control and prevention (CDC) defines contraception to be the use of method, devices, or medication to prevent pregnancy or delay childbearing (CDC, 2020). Because of its many applications, the idea of contraception has garnered a lot of scholarly interest over time. As a result, the definition of contraception revolves with the intention behind using it and the technique chosen. But the main goal of using contraceptives, such as general birth control and child spacing, is to prevent unintended pregnancies. In developing nations, the use of contemporary contraceptive methods has been promoted with the aim of reducing fertility rates, slowing population growth, empowering women, especially those who are childbearing, to improve their health, and fostering socioeconomic development (Asiedu et al., 2020). The spacing and number of children that can be desired, the reduction of maternal and infant morbidity and mortality, the empowerment of women and the advancement of economic development, the protection against STDs like HIV/AIDS, and the decline in cases of unsafe abortions are just a few of the positive effects of modern contraceptives (Strong, 2024).

Birth control, often known as contraception, help in preventing conceptions and arranging the number and spacing of offspring. There are numerous ways to avoid getting pregnant. No single product is ideal for everyone, and some techniques are more effective than others. There are two main types of birth control: permanent and reversible. When someone wants to get pregnant, they can quit using birth control, thanks to reversible techniques. Once a permanent procedure is applied, it usually cannot be reversed. The use of medications, contraceptive devices, or surgery to avoid conception is referred to as birth control or contraception. Preventing pregnancy is the act of using contraception. This could be an apparatus, a drug, a process, or a way of acting (Ivanovae et, al, 2019).

With the help of contraception, a woman can take charge of her reproductive health and actively participate in family planning. Counseling should take efficiency, safety, acceptability, and availability (including accessibility and affordability) into account while evaluating contraceptive options. A key tenet is that the selection of contraceptive techniques should be voluntary. Associative contraceptive counseling also significantly increases the likelihood that contraceptive methods will be successfully used. The purpose of birth control methods is to either stop or reverse implantation and growth, or to prevent conception (Lattof, 2018). Less successfully, abstention during fertile periods or withdrawal measures can prevent conception. Other procedures involve physically restricting the passageway (barrier methods or sterilization), hormonally altering the menstrual cycle (Oral Contraceptive (OC) tablets), or both.

Theoretical Review

Classical Modernization. Theory Motivation to limit the number of children needs to be linked to means to do so. One of these theories is Modernization. The theories of modernization explain declines in fertility with changes in economic activity and education in society, (Hawthorn, 1980). The theory predicts that development in terms of improved standards of living, education, health status, per capita income, urbanization, nutrition status and economic growth, will trigger fertility change. Modernization of a society changes the economics of child bearing in such a way that a large number of children become disadvantageous to parents. Apparently, almost all first world countries attained their current fertility levels- below replacement level after their economies achieved development, (Weeks 2000 and Makiwane, 1998). Modernization impacts on women's socio-economic status, and this in turn influences their fertility behavior. Related with modernization is women empowerment in terms of decision making, financial autonomy, as well as weakening of cultural beliefs. Bawah (2002) posits that women with more resources at their disposal relative to spousal income are expected to be more empowered to implement their demand for fertility regulation than women who command a lower share of familial resources or income. Women's financial contribution to household is identified as a critical link between decision making capacity and reproductive outcomes. The Neo-classical household economists in support of this theory stipulate that the social status and economic independence of women that provide opportunities may raise the opportunity costs of children, Cleland and Wilson (1987), Bawah (2002) Among some regions of the world,

Africa in particular, large families are seen as a blessing because they provide useful manpower and insurance against uncertainties of life and risks associated with old age (Louise, 1997). In traditional societies, children provide a positive net flow of resources, services and status-honour to parents, and these acts as incentives to high fertility. On the contrary, in modern societies, there is a reversal of benefits and role of children. Parents more often contribute time, money, services, and support to children and this may have a great influence on reproductive behavior so that parents offer maximum attention to children. This necessitates parents to limit or exercise control over fertility. This paper adopted the theory of classical modernization theory as a theoretical framework, because it helps researcher gain a deeper understanding of complex factors driving social and economic variables that influence married women's decision to use contraceptive methods in Maiduguri Metropolitan Council.

Empirical Review

Study conducted by Mudi, & Pradhan (2023) on attitude and determinants of contraceptive use among the Juang tribe: A cross-sectional study in Odisha, India revealed that, data from cross-sectional mixed-method research was used with a three-stage sampling design that was carried out in 2020–2021 were utilized for this study. The analysis was based on quantitative data from 360 currently married women aged 15–49 years, and qualitative interviews with women and men (12 Focus group discussions and 12 Key-Informant Interviews). Binary logistic regression was used to assess the determinants of contraceptive use among Juang women. Two-thirds of Juang women had low/moderately favorable attitudes towards contraceptive method use. Thirty-four percent of women were using any contraceptive methods. The adjusted odds ratio (AOR) of using contraception was low among the women aged 15–24 years (AOR = 0.38; 95 % CI: 0.19–0.73), illiterate (AOR = 0.11; 95 % CI: 0.06–0.20), married below 18 years (AOR = 0.38; 95 % CI: 0.18–0.77), and not exposed to mass media (AOR = 0.34; 95 % CI: 0.18–0.65) than their respective counterparts. Among the Juang tribe, the use of contraception is limited and influenced by socio-cultural factors, including existing gender norms. Illiteracy, marriage below 18, younger age, lack of income and non-exposure to mass media are significantly associated with the non-use of contraception. Results suggest strengthening and expanding the family planning program outreach, especially among the young, illiterate Juang women.

In a study conducted by Rahaman, Rana, Roy and Chouhan (2022) on spatial heterogeneity and socio-economic correlates of unmet need for spacing contraception in India. The study used data from the National Family and Health Survey, 2015–16. The outcome variable was the unmet need for contraception for delaying subsequent births for two or more years (UNS), and the explanatory variables were socio-cultural and demographic factors. The current study included 56,742 currently married women (aged 15–49 years) who had demand for spacing during the survey. Descriptive statistics, bivariate with chi-square significance test, spatial natural break technique, and multivariate logistic regression were used to accomplish the study objectives. Almost 51% of women were not using contraception to delay their next birth in India. It was found high across all socio-economic

and demographic groups except higher-level education and richest groups. Spatial analysis confirms 248 districts had remarkably high UNS (68% and above). Findings of the multivariate analysis suggest women's education, autonomy, and household wealth status were important factors in reducing UNS. The likelihood of UNS was noticeably higher among women with parity three or more (AOR: 1.42 [1.3–1.55]) compared to their counterparts. Similarly, it was found 44% (AOR: 1.44[1.38–1.51]) more likely among the OBCs than the General caste. It was found 1.24 times more likely in rural (AOR: 1.24[1.19–1.30]) compared to urban. Among the geographical regions, it was found comparatively high in the South (AOR: 6.19 [5.76–6.65]) compared to other regions. Dealing with the UNS necessitates increasing women's education and autonomy, planning to make client choice-based services more accessible, and promoting birth-spacing focused family planning policies.

The age of women sometimes determined the use of contraception because as they grow older they decide to control their birth. Lattot (2018) submit that as women ages 40 to 44, the risk of death is five times higher than among women in their 20s, older women have accumulated health problems during their lives such as diabetes and hypertension. Underwood (2023), for instance classified older married men as between the ages of 40 and above while younger married men are between the ages of 22 to 39 years old. In his research on men in Australia, he found that the majority of married men were sexually active in the last twelve months and, 67% of married men aged 70 years are really sexually active than women of same age.

Study conducted by Alimoradi, Ghorbani,, Bahrami, & Griffiths (2022) revealed that a cross-sectional survey study was conducted in comprehensive health centers of Qazvin City, Iran. The participants comprised 400 married women with mean age of 35.66 years recruited via a two-stage sampling method. The Dyadic Sexual Communication Scale (DSCS) and a socio-demographic questionnaire were used for data collection. Univariable and multivariable linear regression models with a significance level of 0.05 were used for statistical analysis. The mean score of sexual communication was 59.19 out of 78 (SD = 12.63). Based on multivariable linear regression model, life satisfaction (= 0.34 high vs. moderate), frequency of sexual intercourse (= 0.20), moderate vs. poor economic status (= 0.12), and using contraception (= -0.09) were predictors of good dyadic sexual communication.

Study conducted by Shankar, Hooker, Edvardsson, Norman, & Taft (2023) on the prevalence and variations in unintended pregnancy by socio-demographic and health-related factors in a population-based cohort of young Australian women revealed that, secondary analysis was adopted for three waves (2013–2015) of the Australian longitudinal study on women's health new young cohort. Women born between 1989 and 1995 were recruited through internet and traditional media, and peer referral. Respondents completed a baseline web-based survey in 2013 (n=17,010) on their health and healthcare use and were followed up annually. This analysis uses data from women reporting ever having vaginal sex in

waves 2 (n=9,726/11,344) and 3 (n=6,848/8,961). We assessed correlates of lifetime and recent unintended pregnancy using multivariable regression models. At wave 2, among women aged 19–24, lifetime prevalence of unintended pregnancy was 12.6%, rising to 81.0% among ever pregnant women. Pregnancy outcomes among women with a history of unintended pregnancy differed by geographical residence. Disparities in odds of unintended pregnancy were seen by relationship and educational status, contraceptive use, sexual coercion and risky alcohol use. Unintended pregnancy among young Australians is disproportionately experienced by women with structural disadvantages and exposure to sexual coercion. Service improvements to achieve equitable distribution of contraception and abortion services must be integrated with initiatives responding to sexual coercion.

In a study conducted by Ahammed, Kabir, Abedin, Ali & Islam (2019), the analysis of factors affecting birth interval helps to reveal the mechanism and dynamics of fertility behavior which changes the population structure of a country. The study used latest Bangladesh Demographic and Health Survey 2014 data based on two stage stratified sample of households. Different birth intervals have been analyzed using various statistical techniques such as Kaplan Meier estimator, log rank test, Cox proportional hazard model and Frailty model. Among the ever-married women, 92.40%, 76.80% and 61.60% have experienced live birth for first, second and third times, and the estimated median duration of birth intervals are 26, 46, and 58 months, respectively. Using the log rank test, this study found that region, place of residence, mothers' education, partners education, contraceptive use, and mothers age are significantly associated with birth intervals. This study also considered mothers age and working status at first birth interval; mothers' education, age, working status and survival status of previous child at second birth interval; mothers' education, sex of household head, working status, mass media exposure, age, contraceptive use, religion, and survival status of previous child at third birth interval are protective factors in next births. Overall, mothers' age, working status and mass media exposure are protective factors in birth intervals. To fulfill the target, government should pay attention to significant protective factors. Many studies have investigated the determinants of contraceptive use among married women in various parts of Nigeria and other developing countries; there is significant lack of research focusing specifically on Maiduguri metropolitan council, a region with a unique cultural and demographic setting. Most studies have primarily focused on the medical dimension and government intervention effort. This research aims to address this gap by exploring the socio-economic determinants of contraceptives use among married women in Maiduguri metropolitan council.

Methodology

Description of the Study Area

Maiduguri, the capital of Borno State, is located in the North- Eastern part of Nigeria. It lies on Latitude 11° 50' North and longitude 13° 09' East. Maiduguri shares boundaries with Mafa, Konduga and Jere local governments. It has a population estimated of 282,409 male and 257,607 females (National Population Commission, 2006). Eighty (80) percent of the people in the study area practice Islamic religion. Islam permits polygamy which also reflects

on the population of the study area. In addition, the principle of contraception is a controversial matter as far as various Islamic jurisprudences are concerned. This in return subject majority of the people in the study area to have controversial view on contraceptives usage with some high level of suspicion or as a complete aberrant practice.

Population of the Study

The six wards out of 15 existing wards were selected in Maiduguri Metropolitan Council were considered and only married women of reproductive age of 15 to 49 years constituted the population of study because the age groups represent a significant part of the female reproductive population (WHO,2022).

Sample Size

This study applied Cochran sampling formula, since a definite and specific number of the married women in the study area cannot be easily ascertained. This gave us a sample size of 384 as derived based on a sample size formula for a single population shown below (Cochran, 1977):

$$n = Z^2 P \left(\frac{1-P}{(d)^2} \right) \text{-----} 1$$

Where,

n = sample size required.

Z = confidence level (95% level of confidence - 1.96).

P = the proportion in the target population to have a specific characteristic. If no estimate is available set at 50% (or 0.50)

d = Margin of error (5% = 0.05).

Substituting,

$$n = 1.96^2 (0.5) \left(\frac{1-0.5}{(0.05)^2} \right) = 384 \text{-----} 2$$

Sampling Techniques

Sampling as a step in the conduct of research is very fundamental. It forms the basis on which interpretation of the research results are done and inference are made to the entire population (Creswell and Clark, 2007). A multi stage sampling technique was used in the study. Firstly, Purposive sampling technique was used in this study to selected 384 married women from the population of married women in MMC (Parahoo, 1997). The purposive sampling is a method of sampling where the researcher deliberately chooses married women based on their ability to provide relevant information for the analysis. Secondly, the study area was stratified into six wards. These wards are Lamisula, Mafoni, Bolori, Shehuri North, Gwange III and Maisandari wards respectively. Thirdly, systematic sampling was employed to select the required sample from each ward based on the respective number of wards population. About 64 Households were randomly selected from each of these six wards

making a total of 384 respondents in the study area. The adoption of the multistage covered the five districts, the first stage was married women between the age 15 to 49 who were willing to participate in the study were interviewed, and women who fell within the category but were not willing to take part in the study were excluded. Second stage mentally challenged women were excluded and women who had been in marriage for at least one year was interviewed to enable a robust finding. The overall target sample was 384 women.

Method of Data Collection

The questionnaire constructed using simple questions to elicit information on the socio-economic characteristics of the respondents, the socio-economic factors of contraceptive use among married women, knowledge, attitude and practice of contraception e.t.c. The questionnaire was administered to only eligible married women of reproductive age of 15 to 49 years. Three hundred and eighty-four (384) copies of questionnaires were administered but only three hundred and fifty-six (356) copies were retrieved, making 93% return rate.

Model Specification

Multiple Linear Regression Model

The study employed Multiple Linear regression model, model expresses the use of contraceptives as a function of linear combination of observable explanatory variables, some unknown parameters and an error term (e). The empirical model used for determining factors that influenced the use of contraceptives among married women in the study is specified as:

$$Y_i = b_0 + b_1X_1 + b_2X_2 + b_3X_3 + b_4X_4 + b_5X_5 + b_6X_6 + b_7X_7 + b_8X_8 + b_9X_9 + b_{10}X_{10} + b_{11}X_{11} + b_{12}X_{12} + b_{13}X_{13} + b_{14}X_{14} + b_{15}X_{15} + e \text{-----}3$$

Where:

Y_i = Dependent Variable, use of contraceptive
 X_i = vector of explanatory variables which are defined as:
 X_1 = Age of woman (AGE) in years;
 X_2 = Income of husband (HHINC) in Naira;
 X_3 = Number of Children (NC);
 X_4 = Contraceptives experience (CONEXP) in years;
 X_5 = Level of education of Husband (EDUH) in years;
 X_6 = Level of education of Women (EDUW) in years;
 X_7 = Women Occupation (WO) in years;
 X_8 = Religion (RG); X_9 = Gender preference (GPF);
 X_9 = Culture (CLR) b_0 = constant; and e = error term

Data Presentation, Analysis, and Discussion of Results

Data Presentation and Analysis

Table 1: Socio-economic Characteristics of the Respondents n=356

Variables	Frequency	Percentage (%)
Age		
15-19 years	50	14
20-29 years	130	36.5
30-40 years	132	37.1
40-49 years above	44	12.4
Level of Education		
No formal education	62	17.4
Quranic education	88	24.7
Primary	101	28.4
Secondary	69	19.4
Tertiary	36	10.1
Occupation		
Full time House Wife	241	67.7
Govern Employed	37	10.4
Private Employed	11	3.1
Self-employed	67	18.8
Contraceptive Experience		
1-5 years	36	10.1
6-10 years	62	17.4
11-15 years	69	19.4
16-20 years	101	28.4
21-25 years	88	24.7
Number of Children		
1-2	66	18.5
3-4	122	34.3
5-6	135	37.9
7-8	31	8.7
9 and above	2	0.6

Source: Field survey, 2025

Table 1 shows that 14.0% fall between 15-19 years, 36.5% of the married women fall between 20-29 years, 37.1% fall between 30-40 years and 12.4% fall between 40-49 years and above. 37.1% of the respondents were in their youthful age within the age of 30-40 years. This indicates that the respondents are in their active work life and within the age of

conception. The level of education of respondents revealed that 17.4% of the respondents had no formal education, 24.7% had Quranic education 28.4% of the respondents had primary education, 19.4% had secondary education and only about 10.1% had tertiary education. Educational level of respondents is an additional factor which is thought to influence contraceptives use. The use of contraceptive may be dependent upon the level of education of women. The knowledge of birth control methods ultimately influenced contraceptive decisions that enhanced contraceptive usage among married women. About 67.7% of the sampled married women were full-time house wives, 10.4% were government employee, 3.1% were private employee and 18.8% were self-employed. This implies that full-time house wives give birth to many children than career wives and this adversely affect contraceptive use in the study area. The result on contraceptive experience showed that 10.1% had contraceptive experience of 1-5 years, 17.4% had 6-10 years' experience 19.4% had 11-15 years' experience, 28.4% had experience of 16-20 years and 24.7 % married women had experience of 21-25 years. This implies that increase in contraceptive experience predisposes married women to acquisition of knowledge of contraceptive and better contraceptive practices which will increase contraceptive usage and decrease birth rate. The result presented in Table 4.1 also revealed that 18.5% had 1-2 children, 34.3% had 3-4 children, 37.9% of the respondents had between 5–6 children, 8.7% had 7-8 children and 0.6% had 9 and above children. This implies that increasing family size could lead to the adoption of birth control measures. Hence, as the number of children increases, the probability of contraceptive usage decreases.

Table 2: Summary of Multiple Regression for the Effects of Socio-economic Factors on the Use of Contraceptives

Variables	β	Standard Error	T-Test	P-value
Age of woman (X ₁)	1.146	0.123	9.317*	0.000
Household Income (X ₂)	0.457	0.139	3.288***	0.001
Number of Children (X ₃)	0.478	0.164	2.915***	0.018
Contraceptives experience (X ₄)	0.723	0.152	4.757**	0.000
Level of education of Husband (X ₅)	0.431	0.153	2.817***	0.017
Level of education of Women (X ₆)	0.457	0.149	3.067***	0.001
Women Occupation (X ₇)	-0.065	0.012	-5.417*	0.000
Religion (X ₈)	-1.151	0.132	-8.719**	0.065
Preference for Male Child (X ₉)	0.372	0.112	3.321**	0.000
Culture (X ₁₀)	0.236	0.025	9.440*	0.000
Log likelihood	5418.75			
Number of observations	356			
Pseudo R ²	0.151			

Note: *** significant at 1% level, ** significant at 5% level, * significant at 10% level

The result of multiple regression in table 4.2 above, shows that several socio-economic factors are significant predictors at either 1%, 5% or 10% level. Age of woman: a one-year increase in age is associated and led to uses of contraceptives by 1.146 times among married women in the study area. The result further shows that a one unit increase in household income is leading to 0.457 times increase in using contraceptives among married women in the study area. The result of multiple regression also revealed that a one unit increase in the number of children could led to adoption of contraceptive by 0.478 times among married women. A one unit increase in contraceptive experience among married women in the study, led to increases in uses of contraceptive by 0.723 times. One unit increase in the level of education of the husband is associated with 0.431 times increase in using contraceptive. Also, a one unit increase in the level of education of woman is associated with 0.457 times increase in using contraceptive. The result further indicated, a one unit increase in religion activity among married women in the study, led to drastically decrease in uses of contraceptive by - 1.151 times. A one unit increase in cultural influence is associated with 0.236 times increase in using contraceptive among married women. The results show that women occupation is not significant predictors of contraceptive use at 5% level but become significant at 10% level. The log likelihood (5418.75) indicates the models fit, with the lower values indicating better fit. The pseudo R-square value (R^2) 0.751 indicates that about 75 % of the variation in contraceptive use can be explain by the independent variables.

Discussion of Result

The positive coefficient of age of women with high T-value 9.317 and lower P- value, indicated that as women age increase there is a likelihood of using contraceptives increases significantly. This could be due to older women having achieved their desired family size or being more health-conscious. Previous studies by Feyisetan (2000), Bertrand et al. (2001), Oyedokun (2005), Adedini et al. (2018) and Adebayo and Fadeyibi (2013). These studies provide evidence that age was a significant factor in contraceptive use among women in Nigeria and other developing countries.

The study further highlighted that as higher household income in the study area, also more of contraceptive is applied among married women. This could be families may have better access to contraceptives and health services. The positive coefficient, suggests a significant positive effect, supported by the strong T-value and lower P-value. Contrary to the initial interpretation, higher income typically correlates with lower birth rates due to better access to family planning resources, as supported by Parsekar, Hoogar, Dhyani, & Yadav (2021). Oyedokun and Adeyemi (2019), Adebayo and Fadeyibi (2013) and Ezech et al. (2018). The researchers found that household income was a significant predictor of contraceptive use, with women from higher income household more likely to use contraceptives.

Number of Children, as the number of children increases, the likelihood of using contraceptives also rises. Larger families may seek to avoid additional financial and caregiving burdens. The positive coefficient with higher T-value indicating that more

children strongly influence contraceptive use. This finding aligns with Rahaman, Rana, Roy, & Chouhan (2022). Contraceptives

Experience, prior experience with contraceptives was a strong predictor of current use. This could be due to increased familiarity and comfort with contraceptive methods. Positive coefficient and significant T-value with lower P-value, highlight the importance of previous experience in promoting contraceptive use, as stated by Parsekar, Hoogar, Dhyani, & Yadav (2021).

The husband's education level significantly positively impacts contraceptive use. Educated husbands may better understand and support family planning. Positive coefficient and significant T-value and supported by lower P-value confirm this relationship, consistent with findings by Rahaman, Rana, Roy, & Chouhan (2022). Educated women were more likely to use contraceptives, likely due to greater health awareness and empowerment in making reproductive choices. These studies concluded that education is a critical factor in increasing contraceptive use, particularly among women in developing countries. Women occupation, although the coefficient is negative, the strong T-value with lower P-value indicating a slight positive impact. The significant T-value shows that certain occupations might reduce contraceptive use, possibly due to job-related stress or lack of access to healthcare. This finding suggests variability in how employment affects contraceptive use.

The study further shows, religion significantly decreases contraceptive use, with negative coefficient and higher P-value indicating that a substantial barrier. Religious beliefs and community norms can pose significant obstacles to family planning. The strong negative influence was supported by the lower T-value and higher P-value. This was collaborated by Dassah, Domapielle, & Sumankuuro (2022). The study further shows a preference for male children increases contraceptive use, with positive coefficient with a significant T-value and lower P-value. This is because families may use birth control after achieving a desired number of male offspring. This finding was consistent with Rahaman, Rana, Roy, & Chouhan (2022), where study highlighted that married women applied more contraceptive use after achieving a desired number of male children. Cultural factors significantly influence contraceptive use in the study area among married women as indicated with positive coefficient, with a significant T-value and lower P-value. These was because certain cultural beliefs either support or oppose family planning, as indicated by the significant T-value and P-value. This finding aligns with Bankole and Dassah, Domapielle and Sumankuuro (2022).

Conclusion

The study concluded that there are a number of factors found to influence married women's use of contraceptives in the study area. These including age, income, women's work, education level, number of children, experience using contraception, religion, culture, and preference for a male child. These are the variables impacting married women in MMC's decision-making on contraception use. The result of the study further revealed that religious and culture have negative influence towards the use of contraceptives while age, income,

women's work, education level, number of children and experience have positive effects towards the use of contraceptives among married women in Maiduguri Metropolitan Council.

Recommendations of major Findings

Borno State Ministry of Health should employ socioeconomic characteristics for targeted interventions, as they are the factors that determine the use of contraceptives among married women in the study area. Policymakers and healthcare professionals can improve family planning methods which subsequently improve the use of contraceptive among married women in MMC by addressing and identify key issues holistically. Also, Borno State Ministry of information with collaboration with relevant agencies should launch extensive awareness programmes to debunk false belief and misconception about use of contraceptives by focusing on married women with a view to minimize any negative impacts linked to use of contraceptives in the study area.

References

- Agbana, R. D., Michael, T. O. & Ojo, T. F. (2023). Family planning method discontinuation among Nigerian women: Evidence from the Nigeria Demographic and Health Survey 2018. *Journal of Taibah University Medical Sciences*, 18(1), 117-124.
- Adedini, S. A., Odimegwu, C., Imasiku, E. N. & Ononokpono, D. N. (2018). Factor influence contraceptive use among women in Nigeria. Non-linear decomposition analysis, *Reproductive Health*, 15(1), 1-13 doi:10.1186/s12978-018-04856.
- Adebayo, S. B., Fadeyibi, O. (2013). Contraceptive use among women in Nigeria: a review of literature. *African journal of Reproductive Health*, 17(2), 111-123.
- Adebayo, A. Adeyinka, et al (2017). Education, socioeconomic status and contraceptive use in Nigeria, *African journal of Reproductive Health*. Doi:10.29063/ajrh 2017/x21i2.4
- Ahammed, B., Kabir, R., Abedin, M., Ali, M. & Islam, A. (2019). Determinants of different birth intervals of ever married women: Evidence from Bangladesh, *Clinical Epidemiology and Global Health*, 7(2), 450-456.
- Alatinga, K. A., Allou, L. A., & Kanmiki, E. W. (2020). Contraceptive use among migrant adolescent girl head porters in Southern Ghana: Policy implications for sexual and reproductive health education and promotion, *Child Youth Service*, 2(1), 1-12.
- Alenezi, G. G, Haridi, H. K. (2021). Awareness and use of family planning methods among women in Northern Saudi Arabia, *Middle East Fertilization Social Journal*, 26(2), 1-8.

- Alimoradi, Z., Ghorbani, S., Bahrami, N. & Griffiths, M. D. (2022). Socio-demographic predictors of dyadic sexual communication among Iranian married women, *Sexologies*, 31(5), 311—317.
- Amnesty International, (2019). *Women on the Edge*, 1-32. Amnesty International [Online]. Available: https://cepaz.org/wpcontent/uploads/2019/09/WOMAN_LIMITED_web_compressed.pdf.
- Animasahun, V. J, Tijjani, A. M, Amoran, O. E, Oyelakan, A. A, Sholeye, O. O. (2013). *Contraception and fertility among couples in Sagamu* 01(3), 234-239
- Anrudh, K. J. (2018). The impact of education on contraceptive use in developing countries, *Journal: Reproductive Health*. Doi:10.1186/s12978-018-046 3-6 Asiedu, A., Asare, B.Y.,
- Dwumfour-Asare, B., Baafi, D., Adam, A., Aryee, S. E. & Ganle, J. K. (2020). Determinants of modern contraceptive Use: A Cross-Sectional Study among Market Women in the Ashiaman Municipality of Ghana. *International Journal of Africa Nursing Sciences (Elsevier)*, 12(4), 1-8. <https://doi.org/10.1016/j.ijans.2019.100184>
- Aviisah, P. A. Dery, S. Atsu, B. K. Yawson, A., Alotaibi, R. M. Rezk, H. R. (2018). *Modern contraceptive use among women of reproductive age in Ghana: Analysis of the 2003 – 2014 Ghana demographic and health surveys*, BMC Womens Health [Internet], 1–10, <https://doi.org/10.1186/s12905-018-0634-9>.
- Clark, C. J., Shrestha, B., Ferguson, G., Shrestha, P. N., Calvert, C., & Gupta, J. (2020). Impact of the Change Starts at Home Trial on Women's experience of intimate partner violence in Nepal, *SSM - Population Health*, 1-12.. <https://doi.org/10.1016/j.ssmph.2019.100530> Cleland, J.,
- Conde-Agudelo, A., Peterson, H. Ross, J., & Tsui, A. (2019). Contraception: a review of the evidence, *The Lancet*: 398 (10168), 399-410. Doi: 10.1016/s0140-6736 (19) 30222-5 Dassah, C.,
- Domapielle, M. K. & Sumankuuro, J. (2022). Contraceptive Use among Female Head Porters: Implications for Health Policy and Programming in Ghana, *Heliyon*, 8(5), 1-9. <https://doi.org/10.1016/j.heliyon.2022.e11985>
- Davis, K. (1963). The theory of change and response in modern demographic history, *Population Index*, 29(4), 345-366. Eze, O.K.,

- Adebayo, S. B. & Anyanti, J. (2018). Household income and contraceptive use in Nigeria: A multilevel analysis, *Journal of family planning and Reproductive Health care*, 44(3), 148-155.
- Emily, A. Dansereau et al (2020). Education and contraceptive use in developing countries: A systematic review, *Journal: Studies in Family Planning*, doi 10.1111/sifp.12122
- Fagbamigbe, A. F. (2021). How soon modern contraceptive use does starts after sexual debut in Africa? Survival analysis of timing and associated factors among never-in-union women, *Scientific African*, 11(4), 1-14.
- Family Planning (2020). *Factsheet family planning new and renewed commitments Washington, DC*; https://www.familyplanning2020.org/sites/default/files/FP2020_New_Commitments_7.13.2016-FINAL.pdf. (Accessed on 8th May, 2024).
- Fekadu, G. A., Omigbodun, A. O., Roberts, O. A., & Yalew, A. W. (2020). Factors associated with early long-acting reversible contraceptives discontinuation in Ethiopia: evidence from the 2016 Ethiopian demographic and health survey, *Arch, Public Health*, 78(36), 1-8. doi:10.1186/s13690-020-00419-w
- Forrest, W., Arunachalam, D., & Navaneetham, K. (2020). Intimate partner violence and contraceptive use in India: The moderating influence of conflicting fertility preferences and contraceptive intentions, *Journal of Biosocial Science*, 50(5), 212–226.
- Getahun, D. S., Wolde, H. F., Muchie, K. F., & Yeshita, H. Y. (2018). Utilization and determinants of long term and permanent contraceptive methods among married reproductive age women at Janamora district, northwest Ethiopia, *BMC Res. Notes*, 11(1), <https://doi.org/10.1186/s13104-018-3942-0>.
- Haile, D. & Lagebo, B. (2022). Magnitude of dual contraceptive method utilization and the associated factors among women on antiretroviral treatment in Wolaita zone, Southern Ethiopia, *Heliyon*, 8(2), 1-8. <https://doi.org/10.1016/j.heliyon.2022.e09595>
- Imongan, W. (2014). *Family planning for community health workers in Edo state, Nigeria* [Http://www.nursingworldnigeria.com/2014/08](http://www.nursingworldnigeria.com/2014/08)
- Ivanova, O., Rai, M., Mlahagwa, W., Tumuhairwe, J., Bakuli, A., Nyakato, V. N. & Kemigisha, E. (2019). A Cross-Sectional Mixed-Methods Study of Sexual and Reproductive Health Knowledge, Experiences and Access to Services among Refugee Adolescent Girls in the Nakivale Refugee Settlement. Uganda, *Reproductive Health*, 16(1), 1-35.

- Kamath, P., Rao, A. P. & Prakash, N. (2019). Contraceptive choices following first childbirth among working women in Udupi taluk, *Clinical Epidemiology and Global Health*, 7(1), 1-5. <https://doi.org/10.1016/j.cegh.2017.10.008>
- Kass-Hanna, J. Kassis, M. & Hanna. F, (2022). The socio-economic status and health outcomes in the middle East, *Journal of Health and Socio Behavior* 63(1), 1-14
- Koringa, H. T, Joshi, K. J. & Mehta, J. P. (2019). A study on various factors affecting family planning practices among eligible couples in urban slums of municipal corporation area in Jamnagar, Gujarat, India. *IJMSPH*, 4(12):1675–1680.
- Koomson, C. A, Agyemang. C. O, Agyei. E. (2020). The impact of socio-economic factors on health outcomes in developing countries, *Journal of Health Studies*. 50(2), 123-135
- Lattof, S. R., (2018). Health insurance and care-seeking behaviours of female migrants in Accra, Ghana, *Health Population Planning*, 33(4), 505–515.
- Marquez-Lameda, R. D. (2022). Predisposing and enabling factors associated with Venezuelan migrant and refugee women's access to sexual and reproductive health care services and contraceptive usage in Peru. *Journal of Migration and Health*, 5(2), 1-7.
- Meselu, W., Habtamu, A., Woyraw, W. & Tsegaye, T. B. (2022). Trends and predictors of modern contraceptive use among married women: Analysis of 2000–2016 Ethiopian Demographic and Health Surveys. *Public Health in Practice*, 3(1), 1-14.
- Mudi, P. K. & Pradhan, M. R. (2023). Attitude and determinants of contraceptive use among the Juang tribe: A cross-sectional study in Odisha, India. *Clinical Epidemiology and Global Health*, 24(2), 1-6. <https://doi.org/10.1016/j.cegh.2023.101448>
- Narzarya, P. K. & Ao, M. (2019). Assessment on determinants of contraceptive morbidity in Northeast India, *Clinical Epidemiology and Global Health*, 7(2), 35-40.
- National Population Commission (2016). National Bureau of Statistics Estimates (NBS). (2016). *National Population Estimates*. 1-32
- Nduka, I, Aguwa, E. N, & Nduka, E. C. (2020). Training on universal basic precautions and provision of personal protective equipment: Effect on prevention of transmission of HIV in hospital setting, *Gazette of medicine*. 2012; 1(1), 41-48.

- Obwoya, J. G., Joseph, K. & Wulifan, A. K. (2018). Factors influencing contraceptives use among women in the Juba city of South Sudan, *Family Planning*, 7(1), 1-8.
- Olamide, O. Oloyede et al (2019). Contraceptive use and education in sub-saharan Africa, *Journal of Biosocial Science*, doi: 10.1017/s0021.
- Otekunrin, O. A., Olasehinde, L.O., Oliobi, C. E., Otekunrin, O. A. & Osuolale, K. A. (2023). Exploring women's preferences for attributes of long-acting reversible contraceptive (LARC) methods: A discrete choice experiment, *Scientific African*, 19(1), 1-9.
- Oyediran, A. K. (2002), *Spousal Communication and fertility behaviour Among the Yoruba of South-western Nigeria: The case of Ogbomoso and Iseyin*, Retrieved on 15 December 2009 from (www.google.com).
- Oyedokum, A. O. (2005). Determinants of contraceptive use among women of reproductive age in Nigeria, *Journal of bio-Social Science*, 37(4), 417-433. Doi: 10./017/S0.
- Oyedukum, A. O. & Adeyemi, A. S. (2019). Contraceptive use among women in Nigeria: Does Household income matter? *Journal of bio-social science*, 51 (4), 531-544.
- Parsekar, S. S., Hoogar, P., Dhyani, V. S. & Yadav, U. N. (2021). The voice of Indian women on family planning: A qualitative systematic review, *Clinical Epidemiology and Global Health*, 12(4), 1-9.
- Population Reference Bureau (2019). *Family planning data sheet*, <https://www.prb.org/wp-content/uploads/2019/09/fp-data-sheet-2019.pdf>. (Accessed on 8th May, 2024).
- Pradhan, M. R. (2022). *Contraceptive mix and informed choice*, International Lancet Press. London. 255–257.
- Rahaman, M., Rana, J., Roy, A. & Chouhan, P. (2022). Spatial heterogeneity and socio-economic correlates of unmet need for spacing contraception in India: Evidences from National Family Health Survey, 2015-16, *Clinical Epidemiology and Global Health*, 15(1), 1-8.
- Sayehmiri, K, Kareem, K. I, Abdi, K, Dalvand, S, & Gheshlagh, R. G. (2020). The relationship between personality traits and marital satisfaction: a systematic review and meta-analysis, *BMC Psychology*, 8(1), 1-15.
- Schrumpf, L. A., Stephens, M. J., Nsarko, N. E., Akosah, E., Baumgartner, J. N., Ohemeng-Dapaah S, (2020). Side effect concerns and their impact on women's uptake of modern family planning methods in rural Ghana: a mixed methods study, *BMC Womens Health*; 20(4), 46-57. <https://doi.org/10.1186/s12905-020-0885-0>

- Shankar, M., Hooker, L., Edvardsson, K., Norman, W.V. & Taft, A. J. (2023). The prevalence and variations in unintended pregnancy by socio-demographic and health-related factors in a population-based cohort of young Australian women. Australian and New Zealand, *Journal of Public Health*, 47(3), 1-8.
- Shaweno, T, & Kura, Z. (2020). Determinants of modern contraceptive use among sexually active men in Ethiopia; using EDHS 2016 national survey. *Contraception Reproductive Medicine*, 5(1), 5-11.
- Rocca, C. H. & Harper, C. C. (2020). *National family planning: A review of literature: contraception*: 102(2), 93-100. doi: 10.1016/j.contraception.2020.4.009
- Strong, J. (2024). “Even when you write with a pencil there is an eraser to clean it”: Examining men's conceptualizations of and involvement in emergency contraceptive use in Accra, Ghana. *Social Science & Medicine*, 344, 1-10. <https://doi.org/10.1016/j.socscimed.2024.116635>
- Stevenson, A. J. & Allsworth, J. E. (2020). Contraceptive efficacy and effectiveness: In R. A.Hatcher, J. Trussell, A.L. Kowal (eds), *Contraceptive Technology*: (21 ed., 781-791) New York: Andent media.
- Subrata, L. (2016). Contraceptive use and education in India: A multilevel analysis, *Journal of Family Planning and Reproductive Health Care*, Doi:10.1136/jfprhc-2015-101355.
- Svec, J. & Andic, T. (2018). Cooperative decision-making and intimate partner violence in Peru: cooperative decision-making and intimate partner violence in Peru. *Population Development Review*; 44(1), 63–85. <https://doi.org/10.1111/padr.12127>.
- Tewabe, T., Ayalew, T., Abdanur, A., Jenbere, D., Ayehu, M., Talema, G. & Asmare, E. (2020). Contraceptive use and associated factors among sexually active reproductive age HIV positive women attending ART clinic at Felege Hiwot Referral Hospital, Northwest Ethiopia: A cross-sectional study, *Heliyon*, 6(2), 1-8.
- Underwood, C. R., Casella, A., Hendrickson, Z. M. (2023). Gender Norms, Contraceptive Use, and Intimate Partner Violence: A Six-Country Analysis. *Sexual & Reproductive Healthcare*, 35(5), 1-9. <https://doi.org/10.1016/j.srhc.2023.100815>
- United Nation Educational Scientific and Cultural Organization (2018). *Developing an education sector response to early and unintended pregnancy*, Paris (France):(UNESCO 2018). Available from <http://unestoc.unesco.org/unages/0023D/230510E.pdf>.

- World Health Organization (2018). *Family planning /contraception*, Available at <https://www.who.int/news-room/fact-sheets/detail/family-planning-contraceptive>.
- World Health Organization (2020). *Family planning/contraception methods fact sheet*, <https://www.who.int/news-room/fact-sheets/detail/family-planning-contraception>. (Accessed on 7th May, 2024).
- World Health Organization (2021). *Violence against women prevalence estimates, 2018: Global, regional and national prevalence estimates for intimate partner violence against women and global and regional prevalence estimates for non-partner sexual violence against women*. 1-32.
- World Health Organization. (2022). *Family planning/contraception*. 1-32. Available at [https:// www.who.int/news-room/fact-sheets/detail/family-planning-contraceptive](https://www.who.int/news-room/fact-sheets/detail/family-planning-contraceptive) (Accessed on 5th May, 2024). World Health Organization. (2024). *Contraception: Contraception Methods*. 1-7. https://www.who.int/health-topics/contraception#tab=tab_3 (Accessed on 7th May, 2024).