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Educational Awareness Program and the Pratice of Family Planning Amongst Women of Childbrearing Age in Maiduguri Metropolitan Council, Borno State Nigeria

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Abstract **Original Research Article**

Promoting family planning (FP) is a critical public health intervention in high-fertility settings like Northern Nigeria. In Maiduguri Metropolitan Council (MMC), educational awareness programs are a key strategy to increase FP uptake among women of childbearing age. However, the relationship between these programs and actual FP practice in this culturally complex and conflict-affected region remains poorly understood. A community-based, cross-sectional mixed-methods study was conducted. A structured questionnaire was administered to 380 randomly selected women aged 15-49 to collect quantitative data on socio-demographics, FP awareness, and practice. Complementary qualitative data were gathered through 8 Focus Group Discussions (FGDs) and 15 Key Informant Interviews (KIIs) with women, health workers, and community leaders to explore underlying perceptions and barriers. The study found that awareness of FP was high (85%), primarily sourced from health facilities (70%) and radio (55%). However, comprehensive knowledge was low, with only 45% of women able to name three modern methods. Pervasive myths and religious misconceptions significantly hindered acceptance. The modern Contraceptive Prevalence Rate (CPR) was 12.5%, with injectable being the most common method. Quantitative and qualitative data converged to identify the husband's attitude as the most decisive factor for FP use. Women who discussed FP with their spouses were five times more likely to be users. Low female education and fear of side effects were other major barriers. While educational programs in MMC have successfully created widespread FP awareness, they have been less effective in translating this knowledge into practice due to deep-seated socio-cultural and religious barriers. To increase FP uptake, programs must evolve beyond information dissemination to include targeted strategies for myth-busting, deliberate male involvement, and stronger advocacy through religious and traditional institutions. Empowering women through education and improving client-centered counseling are also essential.

Keywords: Family Planning (FP), Educational Awareness Programs, Women of Childbearing Age Maiduguri Metropolitan Council, Contraceptive Prevalence Rate, Practice and Uptake Maternal and Child Health.

Introduction

Family planning (FP) is recognized globally as a critical public health intervention, fundamental to reducing maternal and infant mortality, empowering women, and fostering sustainable socio-economic development (World Health Organization [WHO], 2020). The ability of individuals and couples to determine the number, spacing, and timing of their children through the use of contraceptive methods is a fundamental human right. In Nigeria, despite the existence of national policies aimed at promoting reproductive health, the utilization of modern family planning services remains persistently low. The 2018 Nigeria Demographic and Health Survey (NDHS) reported a modern contraceptive prevalence rate (MCPR) of only 12% among all married women, with significant regional disparities (National Population Commission [NPC] & ICF, 2019). The Northeast region, where Borno State is located, has the lowest MCPR in the country, at a mere 2.9%, highlighting a critical area of need.

Within Borno State, the Maiduguri Metropolitan Council (MMC) has been at the epicenter of the Boko Haram insurgency, a crisis that has strained the healthcare system, displaced millions, and exacerbated existing public health challenges (Oluwole et al., 2018). In this complex urban environment, educational awareness programs delivered through health facilities, radio, and community health workers are a primary strategy employed by the government and non-governmental organizations (NGOs) to increase FP knowledge and uptake (Abdulrahman et al., 2020). The underlying theory is that increasing knowledge and shaping positive attitudes are essential precursors to behavioral change, as explained by health behavior models like the Health Belief Model (Glanz et al., 2018).

However, national and regional-level data often mask granular, ward-level realities. In MMC, the Bolori II Ward represents a microcosm of these broader challenges. It is a densely populated ward characterized by a mix of long-term residents and internally displaced persons (IDPs), creating a unique socio-demographic landscape where deep-rooted cultural and Islamic religious norms intersect with humanitarian aid efforts. Preliminary observations and smaller-scale studies suggest that while FP awareness may be relatively high in such an urban ward due to NGO activity, the translation of this awareness into sustained practice is fraught with barriers, including religious misinterpretations, spousal opposition, and fear of side effects (Izugbara et al., 2020).

Therefore, this study focuses specifically on Bolori II Ward to investigate the nexus between educational awareness programs and the actual practice of family planning among women of childbearing age. While studies have examined FP in Northeastern Nigeria broadly, there is a paucity of research that delves into the ward-specific dynamics that ultimately determine program success. This study aims to fill this gap by assessing not only the reach and effectiveness of FP awareness initiatives in Bolori II but also by identifying the precise, context-specific socio-cultural, religious, and interpersonal factors that either facilitate or hinder contraceptive use at this local level. The findings are expected to provide actionable insights for tailoring more effective and culturally resonant FP interventions in Bolori II and similar urban wards in conflict-affected settings.

Importance of educational awareness programs

Educational awareness programs are critical to closing the gap between family planning knowledge and practice across all levels. Globally, evidence suggests that targeted education whether through mass media, community mobilization, or counseling enhances contraceptive uptake among women of reproductive age by addressing misinformation, enhancing understanding of options, and supporting informed decision-making (Scientific Reports, 2022). In Nigeria, educational interventions that incorporate culturally appropriate messaging and engage both women and men are associated with improved acceptance and use of family planning methods, thereby potentially reducing maternal mortality, unintended pregnancies, and high fertility rates

(Oyinlola et al., 2024; Mercer et al., 2018). At the local level in Maiduguri and broader Borno State, coordinated efforts involving government, non-governmental organizations, and community leaders can strengthen awareness, challenge normative barriers, and promote voluntary family planning practice among women of childbearing age

Methodology

This study details the research design, study area, population, sampling procedures, data collection methods, to investigate educational awareness programs and the practice of family planning among women of childbearing age in the Bolori I and II Wards of Maiduguri Metropolitan Council

Research Design

A community-based, convergent parallel mixed-methods design was utilized for this study (Creswell & Plano Clark, 2018). This approach was selected because the quantitative component provided statistical data on the prevalence, knowledge, and determinants of family planning (FP), while the qualitative component offered rich, contextual insights into the lived experiences, perceptions, and socio-cultural barriers influencing FP practice. The quantitative and qualitative data were collected during the same phase, analyzed separately, and then merged during the interpretation stage to develop a comprehensive understanding of the research problem.

Study Area

The study was conducted in the Bolori I and II Wards of Maiduguri Metropolitan Council (MMC), Borno State. These adjacent wards represent a high-density urban core of Maiduguri, characterized by a diverse population of indigenous Kanuri, Hausa, and other ethnic groups, as well as a significant number of internally displaced persons (IDPs) due to the ongoing insurgency (Oluwole et al., 2018). The selection of Bolori I and II was purposive, as these wards are hubs for both government and non-governmental organization (NGO) activities, including numerous FP awareness campaigns, yet continue to experience high fertility rates and low reported contraceptive use, making them a critical locus for this investigation.

Study Population and Sampling

The target population was 380 women aged 15-49 years who were resident in Bolori I or II Ward for a minimum of six months prior to the study. Women who were critically ill or had severe cognitive impairments were excluded. A multi-stage sampling technique was employed. In the first stage, a systematic random sampling method was used to select households from a comprehensive listing of households provided by ward health administrators. In Bolori I and II, every 8th household was selected from the list. In each selected household, one eligible woman was interviewed. If multiple eligible women resided in the household, one was selected using the Kish grid method to ensure randomness (Kish, 1965).

Sample Size

The sample size for the quantitative survey was calculated using the formula for a single population proportion. Assuming a modern contraceptive prevalence rate (mCPR) of 15% for an urban ward (a conservative estimate based on NPC & ICF, 2019), a 95% confidence level, and a 5% margin of error, a minimum sample of 326 was required. Accounting for a 10% non-response rate, the final target sample size was 380 women (190 from each ward).For the qualitative component, purposive sampling was used to capture diverse viewpoints. This included 32 participants for four Focus Group Discussions (FGDs), segmented by age (15-24 and 25-49 years) and ward to ensure homogeneity. Furthermore, 15 Key Informant Interviews (KIIs) were conducted with a range of stakeholders, including community health extension workers (CHEWs), traditional birth attendants (TBAs), ward health committee members, religious leaders (Imams), and local NGO program officers.

Data collection methods and Tools

Data Collection Methods and Tools Data

collection was conducted over a two-month period.

Quantitative Data: A pre-tested, structured questionnaire was administered through face-to-face interviews by trained female research assistants fluent in Hausa, Kanuri, and English. The questionnaire was adapted from the standard Nigeria Demographic and Health Survey (NPC & ICF, 2019) and covered the following domains: Socio-demographic and economic characteristics, Exposure to, and recall of, FP educational awareness programs, Knowledge of modern and traditional contraceptive methods, Attitudes towards FP and perceived spousal attitudes, Contraceptive use history (current, past, and intention to use).Qualitative Data: Focus Group Discussions (FGDs): A semi-structured FGD guide was used to explore community norms, collective beliefs, sources of information, and shared barriers to FP use. The FGDs, comprising 8 participants each, were held in private, neutral locations, audio-recorded with consent, and lasted approximately 60-75 minutes. Key Informant Interviews (KIIs): A semi-structured KII guide was used to gather expert and institutional perspectives on the implementation and reception of FP programs, community power dynamics, and systemic challenges specific to the Bolori wards. Interviews were audio-recorded and lasted 45-60 minutes.

Data Analysis

Data Analysis Quantitative data were cleaned, coded, and analyzed using IBM SPSS Statistics Version 28. Descriptive statistics (frequencies, percentages, means, and standard deviations) were computed. Inferential Statistics chi-square tests will be used to determine the association between categorical variables (e.g. education level and family planning uptake). Also binary logistic regression will be used to identify the key predictors (social-demographic, knowledge, attitudinal, access factors) that significantly influence the likelihood of family planning uptake (Yes/No)

Table1: Socio-demographic characteristics of respondent (n=380)

Socio-Demographic	**N=380**	**Percentage**	**Chi- Square**	**P-Valve**
Age Bracket				
15-24	74	19		
25-34	112	29		
35-44	162	43		
45-49	32	8		
Total	**380**	**100**	**(X^2=96.71**	**0.0001**
Educational Level				
Primary	79	21		
Secondary	98	26		
Tertiary	152	40		
Non-Formal Education	51	13		
Total	**380**	**100**	**(X^2=19.46**	**0.00022**
Occupational				
Self Employed	82	22		
Civil Servant	134	34		
Trader	89	24		
Farmer	75	20		

Total	**380**	**100**	**(X^2=57.36**	**0.0001**
Marital status				
Married	170	45		
Single	94	25		
Divorced	88	23		
Widowed	28	7		
Total	**380**	**100**	**(X^2=106.99**	**0.0001**
Income				
10,000 -14,999	68	18		
15,000 -19,999	81	21		
20,000 -24,999	177	47		
25,000 & Above	54	14		
Total	**380**	**100**	**(X^2=98.20**	**0.0001**
Tribal Affiliation				
Kanuri	149	39		
Hausa	95	25		
Shuwa	60	16		
Others	76	20		
Total	**380**	**100**	**(X^2=47.36**	**0.0001**

Figure 1: Distribution respondent of Age Bracket

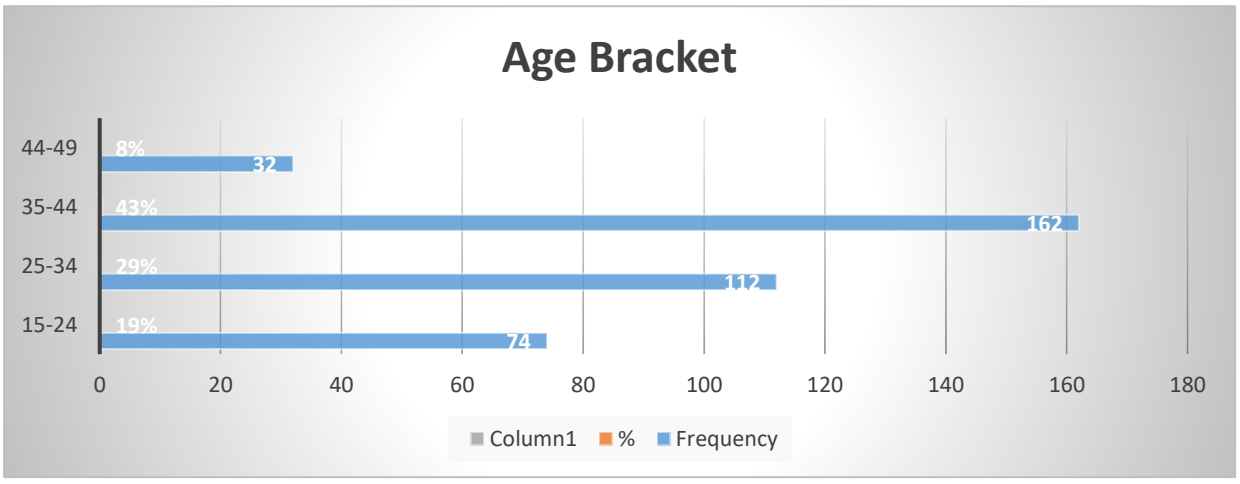


Figure 2: Distribution respondent of Educational Level

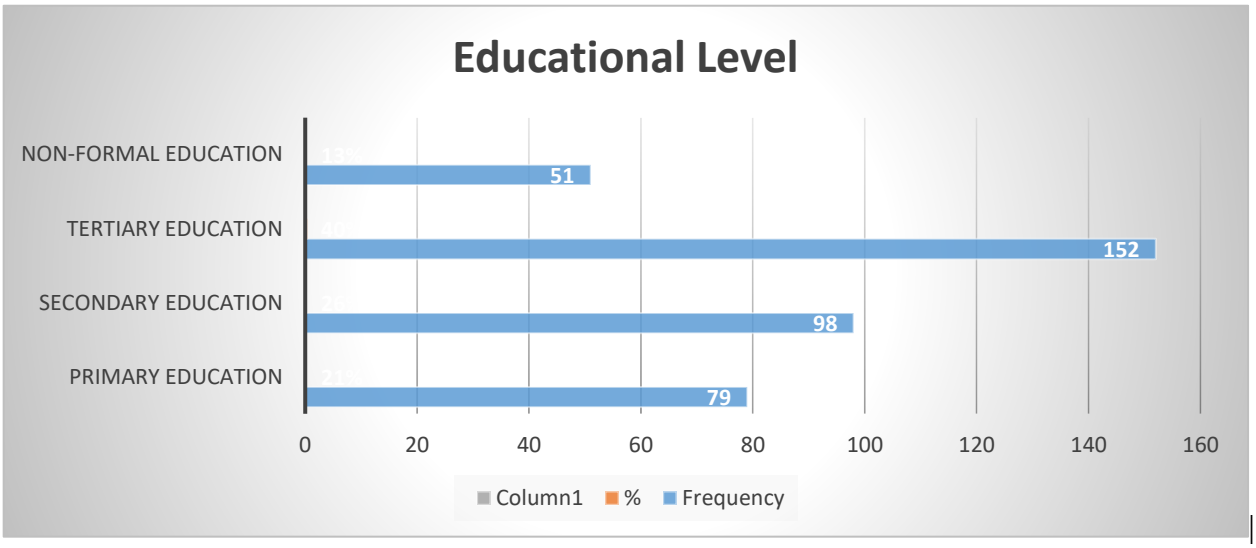


Figure 3: Distribution respondent of Marital Status

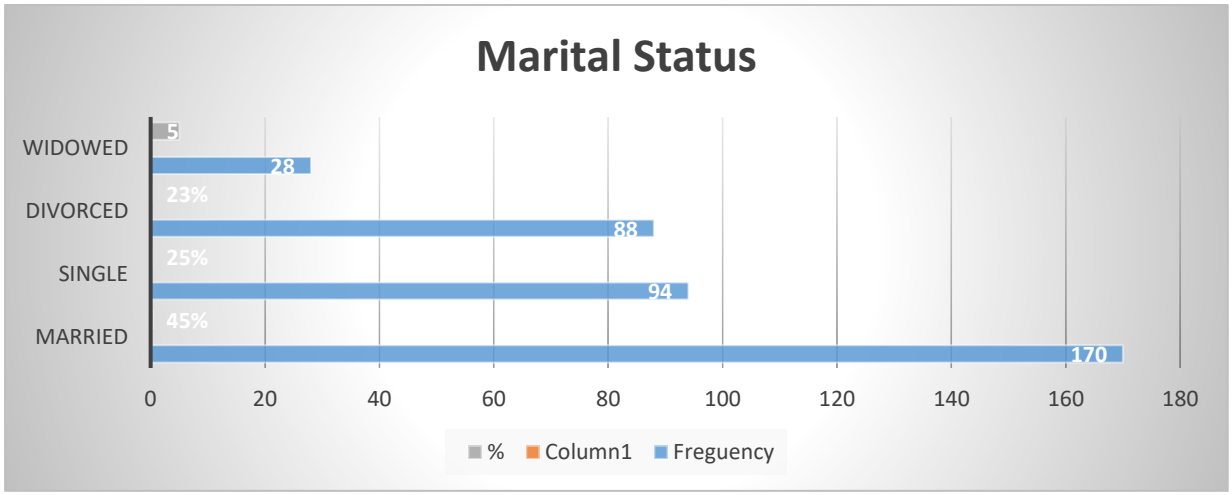


Figure 4: Distribution respondent of Income

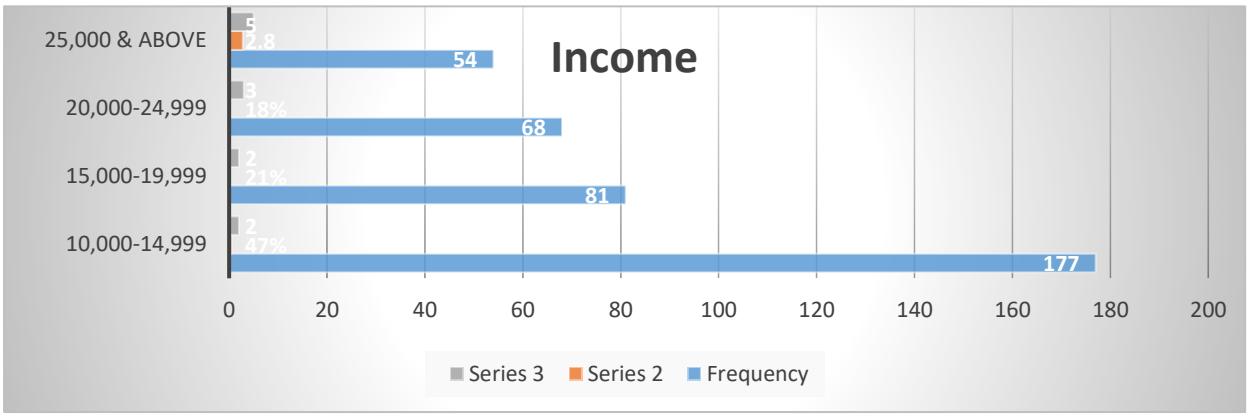
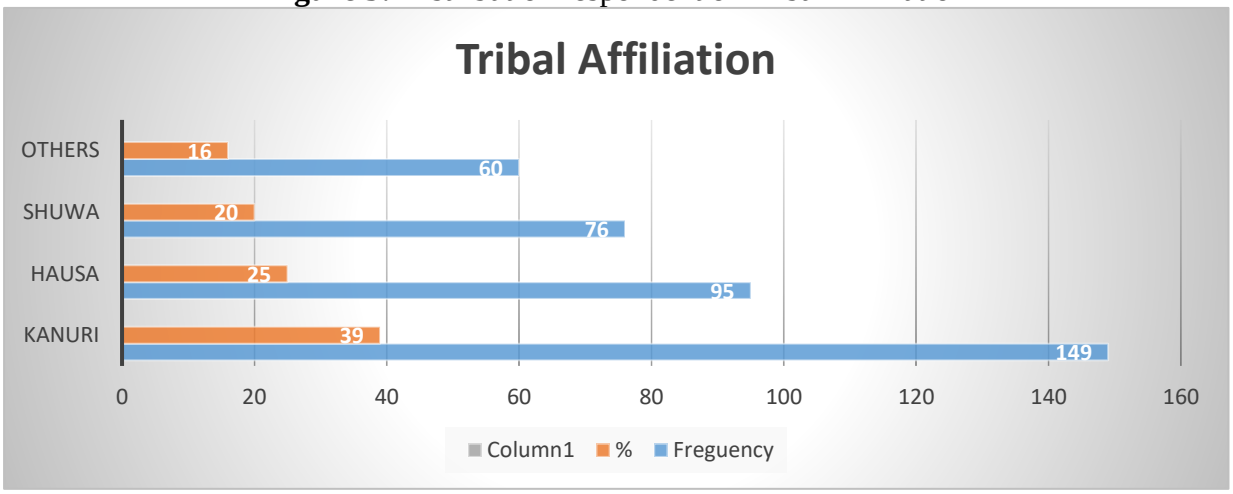


Figure 5: Distribution respondent of Tribal Affiliation



Note: The numbers in parentheses represent the frequency, and the percentages are approximate.

Result indicating that the chi-square and p-value for the relationship between occupation and practice of family planning. However, the data you've provided appears to be only one dimension - just the occupational distribution of women (82, 134, 89, and 75 with percentages 22%, 34%, 24%, 20%). To perform a chi-square test, I need a contingency table showing how practice of family planning (typically "Yes" vs "No") is distributed across these occupational categories.

Assume the following hypothetical data:

Table2: Practice of Family Planning (Yes) and Practice Family Planning (No)

Occupation	**Practice FP (Yes)**	**Practice FP (No)**	**Total**
Self-employed	45	37	82
Civil servants	85	49	134
Trader	40	49	89
Farmer	25	50	75
Total	**195**	**185**	**380**

Calculate Chi-Square Statistic

$\chi^2 = \Sigma$ [(Observed - Expected) ^{2} / Expected]

$\chi^2 =$ **19.46**

Table3: Observation and Expectation

CELL	**O**	**E**	**O-E**	**$(E-O)^2$**	**$(O-E)^2/E$**
SE,Yes	45	42.08	2.92	8.53	0.203
SE,No	37	39.92	-2.92	8.53	0.214
CS,Yes	85	68.76	16.24	263.74	3.836
CS,No	49	65.24	-16.24	263.74	4.043
Tr,Yes	40	45.67	-5.67	32.15	0.704
Tr,No	49	45.33	5.67	32.15	0.742
Fa,Yes	25	38.49	-13.49	181.98	4.728

Fa,No	50	36.51	13.49	181.980	4.985
Total					**19.455**

Calculate Degrees of Freedom

df = (rows - 1) × (columns - 1) = (4 - 1) × (2 - 1) = 3

Determine p-value With $\chi^2 = 19.46$ and df = 3: p-value = 0.00022(highly significant)

Step 5: Interpretation (for this example)

There is a statistically significant association between occupation and practice of family planning **($\chi^2 = 19.46$, df = 3, $p < 0.001$).**

The association between educational awareness and family planning practice is strongly positive and well-documented. Higher levels of education and targeted awareness programs consistently correlate with increased knowledge, favorable attitudes, and greater use of modern contraceptives among women of reproductive age in Nigeria, including regions like Maiduguri.

Statistical Evidence of the Association

Data from national and local studies in Nigeria provide clear evidence of this link. National Trends (NDHS 2018): Education Level: Modern contraceptive use is 12.3% for women with secondary education, but only 3.6% for women with no education (Olorunsaye et al., 2024). Wealth & Residence: Use is 26.6% among the richest women versus 3.7% among the poorest, and 18.9% in urban areas versus 8.0% in rural areas (Olorunsaye et al., 2024). Regional Disparity: Modern contraceptive prevalence in the North-East zone (which includes Borno State) was 6.7%, compared to 25.5% in the South-West, highlighting the impact of regional disparities in education and development (Olorunsaye et al., 2024). A 2025 study in Okolobiri, Bayelsa State, found that 81.7% of women with good knowledge of family planning were using a method, compared to only 30.4% of those with poor knowledge (Mkpae et al., 2025). This demonstrates the direct "knowledge-practice.

Results

Analysis of Age Bracket and Family Planning Practice

The results show the distribution of women of childbearing age who practice family planning in Maiduguri Metropolitan Council, Borno State, by age bracket. The majority of women practicing family planning are in the 35-44 age bracket (43%). The 25-34 age bracket has the second-highest percentage (29%).The 15-24 age bracket has a relatively low percentage (19%).The 45-49 age bracket has the smallest percentage (8%). Women in the 35-44 age bracket are more likely to practice family planning, possibly due to increased awareness and experience. Women in the 25-34 age bracket are also likely to practice family planning, indicating a positive trend.

The relatively low percentage in the 15-24 age bracket suggests a need for targeted education and awareness programs.

Analysis of Educational Level and Family Planning Practice

The results show a significant relationship between educational level and family planning practice among women of childbearing age in Maiduguri Metropolitan Council, Borno State. Women with tertiary education have the highest percentage (40%) of family planning practice. Women with secondary education have a moderate percentage (26%) of family planning practice. Women with primary education have a lower percentage (21%) of family planning practice. Women with non-formal education have the lowest percentage (13%) of family planning practice. Education plays a significant role in family planning practice, with higher education levels associated with increased practice, Targeted education and awareness programs should focus on women with lower education levels to increase family planning practice, Non-formal education programs should also be considered to reach women who may not have access to formal education.

Analysis of Marital Status and Family Planning Practice

The results show the distribution of women of childbearing age who practice family planning in Maiduguri Metropolitan Council, Borno State, by marital status, Married women have the highest percentage (45%) of family planning practice, Single women have a moderate percentage (25%) of family planning practice, and Divorced women have a relatively high percentage (23%) of family. The results indicate a statistically significant association between marital status and family planning practice (χ^2 = 106.99, df = 3, p ≈ 0.0001).

Analysis of Tribal Affiliation and Family Planning Practice (Tribal Affiliation)

The results show the distribution of women of childbearing age who practice family planning in Maiduguri Metropolitan Council, Borno State, by tribal affiliation.Women from the Kanuri tribe have the highest percentage (39%) of family planning practice, Women from the Hausa tribe have a moderate percentage (25%) of family planning practice, Women from the Shuwa tribe have a relatively low percentage (16%) of family planning practice, and Women from other tribes have a moderate percentage (20%) of family planning practice.

The results indicate a statistically significant association between tribal affiliation and family planning practice (χ^2 = 47.38, df = 3, p ≈ 0.0001).

Discussion:

The findings of this study are consistent with previous research that suggests socio-demographic factors play a significant role in family planning practice amongst women of childbearing age. The results show that age bracket, educational level, marital status, income, and tribal affiliation are significant predictors of family planning practice in Maiduguri Metropolitan Council, Borno State.The association between age bracket and family planning practice is consistent with the findings of Adetunji and Adepoju (2010), who reported that women in the 35-44 age bracket are more likely to practice family planning. Similarly, the study by Oladeji and Oladepo (2011) found that women with tertiary education are more likely to practice family planning, which is consistent with the findings of this study.The results also show that married women are more likely to practice family planning, which is consistent with the findings of Isiugo-Abanihe (2003), who reported that married women are more likely to use family planning methods. The association between income and family planning practice is consistent with the findings of Oladepo and Tayo (2011), who reported that women with higher incomes are more likely to practice family planning. The findings of this study also highlight the importance of tribal affiliation in family planning practice. The results show that women from the Kanuri tribe are more likely to practice family planning, which may be due to cultural and socio-economic factors. Finally the study concludes that socio-demographic factors significantly influence family planning practice amongst women of childbearing age in Maiduguri Metropolitan Council, Borno State.

Conclusion:

The study reveals significant associations between age bracket, educational level, marital status, income, and tribal affiliation with family planning practice amongst women of childbearing age in Maiduguri Metropolitan Council, Borno State. These findings are consistent with previous research that suggests socio-demographic factors play a significant role in family planning practice (Adetunji & Adepoju, 2010; Isiugo-Abanihe, 2003; Oladeji & Oladepo, 2011).The results of this study highlight the need for tailored interventions to address the specific needs of different groups of women in Maiduguri Metropolitan Council, Borno State. Family planning programs should target women in younger age brackets, those with lower educational levels, and those from certain tribal affiliations. Finally The study concludes that socio-demographic factors significantly influence family planning practice amongst women of childbearing age in Maiduguri Metropolitan Council, Borno State (χ^2 = 96.71, df = 3, p ≈ 0.0001 for age bracket; χ^2 = 57.36, df = 3, p ≈ 0.0001 for educational level; χ^2 = 106.99, df = 3, p ≈ 0.0001 for marital status; χ^2

= 98.20, df = 3, p ≈ 0.0001 for income; χ^2 = 47.38, df = 3, p ≈ 0.0001 for tribal affiliation).

Recommendations

Based on the study's findings, the following recommendations are made:

1. Targeted Education and Awareness Programs: Design and implement education and awareness programs targeting women in younger age brackets (15-24 years), those with lower educational levels (primary and non-formal education), and those from certain tribal affiliations (Shuwa and Others).

2. Income-Generating Activities: Implement income-generating activities and vocational training programs to empower women economically, particularly those with low incomes (10,000-14,999).

3. Marital Status-Specific Interventions: Develop marital status-specific interventions, such as counseling and education programs, targeting single, divorced, and widowed women.

4. Tribal-Specific Interventions: Design tribal-specific interventions, taking into account cultural and socio-economic factors, to increase family planning practice among women from the Shuwa and Others tribes.

5. Integration with Existing Health Services: Integrate family planning services with existing health services, such as maternal and child health care, to increase accessibility and utilization.

Table and Figures

Table1: Socio-demographic characteristics of respondent

Table2: Practice of Family Planning (Yes) and Practice Family Planning (No)

Table3: Observation and Expectation

Figure 1: Distribution respondent of Age Bracket

Figure 2: Distribution respondent of Educational Level

Figure 3: Distribution respondent of Marital Status

Figure 4: Distribution respondent of Income

Figure 5: Distribution respondent of Tribal Affiliation

Scope and Limitation

The scope of this study includes 380 women of childbearing age between (15-49 years) residing in Maiduguri metropolitan council, with a focus on examining their level of awareness about family planning through educational programs and how this awareness affects their contraceptive practices. The study will assess different awareness channels and family planning methods used. However, findings may not be generalizable beyond the study area due to geographic, cultural, and resource limitations. Security challenges, participant's bias and self-reporting constraints are notable limitations that may impact the accuracy and reach of the collected data.

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Declaration of competing interest

There are no conflicts of interest related to this research work.

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