

Classification of Family Planning Services Utilization for Prediction of Social and Economic Factors

Adeyemi Samuel Oladele, Ruth Ochanya Adio-Moses, Adeniji Oluwashola David

University of Ibadan

Department of Human Kinetics and Health Education Ibadan, Nigeria

Department of Human Kinetics and Health Education Ibadan, Nigeria

doi: 10.51505/ijaemr.2022.7503

URL: <http://dx.doi.org/10.51505/ijaemr.2022.7503>

Abstract

Family planning does more than enable women to limit family size. It enables women to have the number of children they want and subsequently reduces the incidence of maternal and infant mortality. Family planning method was investigated among market traders in Ibadan metropolis, Nigeria. The study revealed that male condom was the most preferred among the family planning methods used by market traders and their spouses in Ibadan metropolis. Vasectomy/Tubal Ligation received the least preference among the family planning methods. However the level of information among the men was low about the different family planning methods and their risk. Also the low contraceptive prevalence rate in Nigeria is associated with high rates of unsafe and induced abortion the results of the analysis of data collected on the prevalence of family planning services utilization revealed that most market traders in Ibadan metropolis used family planning services. Furthermore, the finding showed that among the males of market traders in Ibadan metropolis, 51.7% used family planning services, while among the female market traders, 64.7% used family planning services. These findings showed that female market traders in Ibadan metropolis use family planning service more their male counterparts. The result of the study also showed the factor(s) that determines the choice of most family planning utilization are: accessibility, availability, cost, perceived effectiveness, no side effects, past practices and from health workers. The result revealed that attitude towards family planning services utilization was significant determinant of family planning services utilization.

Keywords: Family Planning, Demographic, Services, Utilization, classification

1. Introduction

The Nigerian population is the highest in Africa at over 150 million, with a growth rate of 2.9 and a Total Fertility Rate of 5.7 (Population Council, 2011; World Bank, 2009, Federal Government of Nigeria, 2004; National Population Commission (NPC) Nigeria 2009). The NDHS report of 2008 shows that only 14.6% of currently married women aged 15-49 in Nigeria use any method of contraception (Nigerian Population Commission, 2008). This is in spite of the existence of the national policy on population and sustainable development which encourages voluntary limitation of births to 4 children per woman as well as various family planning programmes that have been carried out in the country (Federal Government of Nigeria 2004).

Traditionally, most Nigerian cultures are highly patriarchal, value high fertility and male child preference. A report on reproductive motivation and family size preferences among Nigerian men concludes that the characteristic male dominant and patrilineal traditions support large family sizes and that men's reproductive motivation to a large extent, affect the reproductive behaviour of their wives (Isiugo-abanihe, 1994). These cultural values could have a negative impact on the utilisation of family planning services. Nigerian culture includes many myths, rituals and the use of herbs in attempts to regulate women's fertility. Although many of these traditional methods of family planning have no harmful effects on a woman's health, some however, do have dangerous or counterproductive effects. In addition, the complete effectiveness of many of the traditional methods has remained doubtful. A variety of different methods of family planning are available, which are generally safe compared with the risks associated with pregnancy and childbirth. These include abstinence, barrier methods which involve the use of condoms, diaphragms, cervical caps and spermicides, the use of hormonal preparations which may either be in form of oral pills, injectables or subdermal implants, combined patch, combined vaginal ring, and the use of intra-uterine devices (IUDs) (Audu, Yahya & Bassi, 2006). Previous national surveys have shown trend in knowledge of family planning among women of child-bearing age in the country. The low contraceptive prevalence rate in Nigeria is associated with high rates of unsafe and induced abortion (Monjok, Smesny, Ekabua & Essien, 2010). According to Monjok et al., (2010), it is estimated that up to 60 percent of pregnancies in Nigerian adolescents aged 15-25 years are unwanted and unplanned, with 80 percent of women with such pregnancies resorting to unsafe and illegal abortion. As a result of the restrictive abortion law in the country, women often use dangerous methods to procure abortion, with high rates of complications, which often result in death (Monjok et al., 2010).

2. Literature Review

The factors associated with family planning practice can be divided into personal, demographic, socio-cultural, religious, economic, and health services. Among the personal factors associated with family planning practice are knowledge of family planning methods and influence of family members and friends, especially those who have experience in family planning methods. Demographic factors such as parity, age, marital status, religion, husband's education, husband's occupation, monthly family income, and woman's occupation are also known to be associated with family planning practice. In Yemen, about 42% of women said they had not talked to their husbands about family planning in the year preceding the survey while 26% had discussed it once or twice and 32% had discussed it more often (CSOY, 1998). Women in the oldest and youngest cohorts were least likely to have discussed family planning with their husbands. In 40% of couples, both husband and wife approved of family planning; in 22% both disapprove. In 12% of couples, the wife approved but the husbands did not, while in 4%, the husband approved but the wife did not. There were marked differential by level of education: the higher the wife's level of education, the more likely it is the couple approves family planning. Partly for this reason, couples in urban areas are twice as likely to approve of family planning as those in rural areas. Couples' approval of family planning is highest in the Plateau and Desert region (48%) and lowest in the mountainous region (29%) (CSOY, 1998). The study in [1] used a drafted

questionnaire adapted from the Ethiopia Demographic and Health Survey (EDHS) and similar previous studies are slightly modified to the context of the study. The questionnaire includes socio-demographic characteristics, reproductive history, knowledge, and attitude questions. . In a related review in [2] Knowledge, attitude and practices of contraception among the married women of reproductive age group was presented. The Overall, the mean knowledge score was 4.3 (\pm 3.4 SD), and 43.4% of the respondents had good knowledge of contraceptive methods. This was similar to two previous studies conducted in Ethiopia [3,4] and one study from Nepal. However, the results from other studies in Ethiopia, Nigeria, and India revealed better knowledge of contraceptives compared to the present study. This is similar with other different studies in [5] with possible reasons in which a merchant is allow to be mobile, the result may provide more information from different sources. Similarly, merchants mostly live in urban areas which are easy for information access from the television or radio as well as from healthcare providers. Women from BG and Gambela were at higher odds (AOR=8.8 and 2.5, respectively) to have a favorable attitude than women from Somali region. Similarly, older women (age 25–49) had more favorable attitudes than women from the lowest age sector of 15–24 years. This finding is consistent with studies done in the Jimma zone of Ethiopia and Nepal [6]. This can be explained as age increases, information through experience may increase thereby influencing attitude. Additionally, as women get older they may become less eager to bear more children. The variations observed can be explained by the differences in socio-economic status, cultural norms, study setting, and access to information and health-care services in [7]. Knowledge extraction will allow users to view, sort or search by year, country or location of the information needed. A model for training deep neural net works for classification of breast cancer in his to pathological images was developed in this study in [8]. The developed model in the research due to declination of the symbol-by-symbol restriction in [10].

III. Methodology

The methods and procedures used was cross-sectional survey research design that involves four stages. Also the Sample was used to find the populations of male and female market traders in Ibadan metropolis while a multistage sampling technique was used to select one thousand (1000) respondents for this study. Stage 1 (Stratification): 35 markets were selected and stratified according to their locations in the five LGAs that make up Ibadan metropolis. Stage 2 (Random sampling): Fish bowl without replacement was used to select 50% of markets in each LGA. Stage 3 (Proportionate sampling): The number of respondents selected from each LGA was determined using probability proportional to size .Stage 4 (Purposive sampling): Purposive sampling was employed to select women of child bearing age (15-49years) and men (from 15years old upward) who gave consent for their participation in the study, until the expected number of respondents was attained in each market. A self-structured questionnaire and a Focus Group Discussion Guide were used for data collection.

To ensure that the instrument is reliable, the questionnaire was pre-tested among forty (40) market traders in Oje market. In order to measure the internal consistency of the study instrument, a Cronbach's alpha model was used which produced an index values of 0.73. The completed questionnaires were manually sorted out, cleaned and responses to open ended

questions were grouped and coded. A coding guide was developed and used to code each question. Data entry and analysis was done with the use of Statistical Package for Social Sciences (SPSS) version 15.0. Descriptive statistics of frequency counts and percentages was used to describe the demographic characteristics of the respondents and research questions. Inferential statistics (Cramer’s V chi-square contingency and logistic regression) was used to test the hypothesis at 0.05 level of significance.

IV. Result and Discussion

The result presented shows the order of demographic characteristics, research questions and hypotheses formulated during the study. Table 1. Shows the pattern of family services use among market traders in Ibadan metropolis.

Table 1: Pattern of Family Services Used

AGE(Years)	Formerly used FPS	Currently using	No longer use
Below 25	60 (10%)	54 (90%)	6 (10%)
25-34	228 (38%)	192 (84%)	36 (26%)
35-44	207 (34%)	171 (83%)	36 (27%)
45-54	85 (14%)	57 (67%)	28 (33%)
55-70	25 (4%)	7 (28%)	18 (72%)
TOTAL	605 (100%)	452 (75%)	153 (25%)

The table reveals that 10 %(60) of the market traders who have used family planning services at one point or the other in life were below 25 years of age. Among this 60 market traders 54(90%) still use family planning services while 10%(6) no longer use family planning services. Also 38 %(228) of the market traders who have used family planning services were between 25-35 years. Among this 228 market traders 192(84%) still uses family planning services while 36(26%) no longer use family planning services. More so, 207(34%) of the market traders who have used family planning at one point or the other were between 35 to 44 years of age. Among this 207 market traders 83%(171) still use family planning services while 33% (27) no longer use family planning services. Furthermore, among the 605 market traders who have used family planning services at one point or the other in their life’s, 85(14%) were between 45 to 54 years and out of this 85 market traders 57(67%) still uses family planning services while 28(33%) no longer use family planning services. Lastly, 4% (25) of the market traders who have used family planning services at one point or the other were between the ages of 55-70 years.

Among this 25 traders 7(28%) still uses family planning services, while 18(72%) no longer use family planning services. In all, out of the 605 market traders who have used family planning services at one point or the other in their life’s, 75%(452) still use family planning services while 25%(153) no longer use family planning service. Demographic Factors (marital status, age, sex, religion, parity) will not be significant determinants of family planning services utilization. Logistic regression was conducted to test this hypothesis1. The results are presented as follows:

Table 2: Omnibus Tests of model coefficients of Demographic factors on Family Planning services utilization

		Chi-square	Df	Sig.
Step 1	Step	57.443	5	.000
	Block	57.443	5	.000
	Model	57.443	5	.000

A total of 1000 cases were analyzed. Table 2 reveal that the full model (i.e. the combined demographic factors) significantly determined (Predicted) family planning services utilization (Ominibus chi-square 57.443, df = 5, p < .05). Table 3 revealed that the demographic factors accounted for between 6.6% (Cox & Snell R Square = 0.066) and 8.9% (Nagel-Kerke R Square = 0.089) of the variance in the family planning services utilization status of market traders in Ibadan metropolis, with 86.6% of the users of family planning services correctly predicted. However, only 30.5% of predictions for the non-users of family planning services were accurate.

Table 3: Model of Demographic Factors on Family Planning Services Utilization

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	1068.388	.066	.089

In all 64.7% of predictions were accurate (Table 4.). Hence the null hypothesis was rejected. Nevertheless.

Table 4: Classification of Family Planning Services Utilization

Observed		Predicted		Percentage Correct
		family utilization No	planning Yes	
Step 1 family utilization	planning No	100	228	30.5
	Yes	69	445	86.6
Overall Percentage				64.7

Table 5 gives coefficients and the wald statistic and associated degrees of freedom and probability values for each of the demographic factors. This shows that all the demographic factors (i.e., marital status, Age, Sex, parity and religion) reliably determined family planning

services utilization. The values of the coefficients (that is Exp (B) reveal that: an increase of one unit of marital status is associated with decrease in the odds of family planning services utilization by a factor of .74 which is likely to be in the range 0.58 to 0.94 of 95% confidence interval (0.74 (95% CI 0.58 – 0.94)). This implies that as the marital status of market traders increases from single to married the likelihood of family planning use decreases; an increase of one unit of age is associated with decrease in the odds of family planning use by a factor of 0.96 which is likely to be in the range 0.94 to 0.98 of 95% confidence interval (0.96 (95% CI 0.94 – 0.98)).

Table 5: Relative Table Contribution of the Demographic Factors in Determination of Family Planning Services Utilization

	B	S.E.	Wald	df	Sig.	Exp(B)	95.0% C.I. for EXP(B)	
							Lower	Upper
Step 1 marital status	-.302	.122	6.124	1	.013	.739	.582	.939
Gender	B .470	.164	8.211	1	.004	1.600	1.160	2.207
Age	-.038	.011	11.901	1	.001	.962	.942	.984
Parity	.241	.058	17.532	1	.000	1.273	1.137	1.425
Religion	-.546	.148	13.602	1	.000	.579	.433	.774
Constant	3.180	.924	11.837	1	.001	24.057		

This implies that older market traders (i.e. those who are a year older than 36 years, the average age of market traders who uses family planning) are less likely to use family planning services (FPS); An increase of one unit of religion is associated with decrease in the odds of family planning use by a factor of 0.58 (95% CI 0.43 – 0.77). This implies that market traders whose religion is other than traditional or Christianity are less likely to use FPS; An increase of one unit of parity is associated with increase in the odds of FPS use by a factor of 1.27 (95% CI 1.14 – 1.43).

This shows that market traders whose number of living children exceeds three (that is, the average number of children of market traders who do not use FPS) is more likely to use FPS; and an increase of one unit of gender is associated with increase in the odds of FPSU by a factor of 1.60 (95% CI 1.16 – 2.21). This shows that a market trader whose gender is other than male (i.e. female) is more likely to use family planning services.

The Hypothesis 2: Social factors (Educational Status, Awareness through media, Awareness through health workers, and Awareness through family members) will not be significant determinants of family planning services utilization among market traders in Ibadan metropolis.

Table 6: Omnibus Test of model coefficients of social factors on family planning

Services utilization.		Chi-Square	Df	Sig
Step 1	Step	42.0170	4	.000
	Block	42.170	4	.000
	Model	42.170	4	.000

Table 6 shows that when all four predictor variables (the social factors) are considered together, they significantly predict whether or not market trader use family planning services (omni bus chrisquare (χ^2) = 42.170, dt = 4, N = 1000, P < .05).

Table7 revealed that the social factors accounted for between 4.1% to 5.6% (cox & snell and Nagelkerke R square respectively) of the variance in family planning services utilization, “with 87.8% of the users of family planning services correctly predicted. However, only 22.3% of predictions for the non users of family planning services were accurate.

Table 7: Model Summary of Social Factors on Family Planning Services Utilization

Step	-2 log likelihood	Cox & Snell R. Square	Nagelkerke R Square
1	1299.695	.041	.056

In all 61.9% of predictions were accurate” (table8). Hence, the null hypothesis was rejected.

Table 8: Classification of Social factors on family planning services utilization

Observed Utilization		Predicted Family Planning			
		No	Yes	Percentage Correct	
Step 1	Family Planning	No	88	307	22.3
	Services utilization	Yes	74	531	87.8
Overall Percentage					61.9

Additionally, Table 9 shows that Educational status, Awareness of Family planning through health workers and Awareness of family planning through media significantly determined family planning services utilization, while Awareness of family planning through family was not a significant determinant. The values of the coefficients of the EXP (B) column reveal that: an

increase of one unit of Educational status is associated with decrease in the odd of FPSU by a factor 0.88 (88%) (95% C.I. 0.79 – 0.98).

This implies that market trader whose level of education is beyond secondary school dropout do not use family planning services; an increase of one unit of awareness through health workers is associated with increase in the odds of FPSU by a factor of 1.29 (95% C.I 1.4 – 1.47). This shows that market traders who became aware of family planning through hospital health workers uses FPS; an increase of one unit of awareness of family planning through media is associated with decrease in the odd of family planning service use by a factor of 0.87 (95% C.I 0.81) – 0.93). This reveals that market traders who came to the awareness of family planning through media sources such other than Billboard and Radio program (that Radio and Television programs) do not use family planning services.

Table 9: Relative contribution of Social Factors in Determination of Family Planning Services Utilization

95% C.1. for Exp (B)		B	S.E	Wald	Df	Sig	Exp (B)	Lower	Upper
Step 1	Edu. Status	- .127	.053	5.690	1	.017	.880	.793	.978
	Awareness through health workers	.255	.065	15.614	1	.000	1.291	1.137	1.465
	Awareness through Media	- .140	.036	15.543	1	.000	.869	.811	.932
	Awareness through Family Members	- .027	.070	.152	1	.697	.973	.848	1.117
	Constant	1.171	.311	14.158	1	.000	3.226		

Hypothesis 3: Economic Factors (income level, residence, place of post natal, place of last child delivery) will not be significant determinants of family planning services utilization among market traders in Ibadan Metropolis. Table 10 reveals that economic factors when considered together do not determine significantly family planning services utilization (omnibus chi-square $\chi^2 = 3.484$, $df = 4$, $N = 1000$, $p > 0.05$).

Table 10: Omnibus test of Model Coefficients of Economic Factors of Family Planning Services utilization

Step 1	Step	Chi-square	df	Sig
		3.484	4	.480

Block	3.484	4	.480
Model	3.484	4	.480

Table 12 reveals that 100% of the users of family planning services were correctly predicted and none of the non-users of family planning services were accurately predicted. However, in all 60.5% of the predictions were accurate. Thus, the null hypothesis was not rejected.

Table 11: Model Summary of Economic Factors on Family Planning Service Utilization

Step	- 2 log likelihood	Cox smell R Square	Nagelkerke R Square
1	1338.380	.003	.005

Table 12: Classification of Family Planning Services Utilization

			Predicted		
			Family Planning Services utilization		
Observed			No	Yes	Percentage correct
Step 1	Family planning services utilization	Non users	0	395	.0
		users	0	605	100.0
	Overall Percentage				60.5

V. Conclusion

This study was conducted to determine the context at which demographic, socio and economic factors influence utilization of family planning services among market traders in Ibadan Metropolis, Oyo State, Nigeria. The independent variables in the study are demographic characteristics of respondents that include marital status, age, sex, religion, parity and social factors; Educational status, Awareness through media, Awareness through health workers, Awareness through family members and economic factors such as income level, location of residence, place of post natal, place of last child delivery. The dependent variable of study is respondents’ utilization of family planning services. A multi-stage sampling technique was employed to select respondents for the study. The results of the chi-square statistics show that there was no significant difference in the family planning services utilization status between those whose level of knowledge in family planning is low and those whose knowledge of family

planning is high. Conclusively, the result revealed that attitude towards family planning services utilization was significant determinant of family planning services utilization.

Acknowledgments

The research was conducted at the Department of Human Kinetics and Health Education, University of Ibadan, Nigeria. The authors thank the department for their support in this research work.

References

- Alege SG, Matovu JKB, Ssensalire S, Nabiwemba E. (2016). Knowledge, sources and use of family planning methods among women aged 15–49 years in Uganda: a cross-sectional study. *Pan Afri Med J.*;24:39. doi:10.11604/pamj24.39.5836 (21).
- Thapa P, Pokharel N, Shrestha M. (2018). Knowledge, attitude and practices of contraception among the married women of reproductive age group in selected wards of Dharan Sub-Metropolitan City. *J Contracept Stud.* ;(3):18. doi:10.21767/2471-9749.
- Kasa AS, Tarekegn M, Embiale M. (2018). Knowledge, attitude and practice towards family planning among reproductive age women in a resource limited settings of Northwest Ethiopia. *BMC Res Notes.* 2018;11:577. doi:10.1186/s13104-018-3689-7(23).
- Kedir GJ, Legesse TW, Seid Y. (2018). Contraceptive utilization among couples and associated factors in Dodota District, Oromia Region, Ethiopia. *Biomed J Sci Tech Res.* ;4(1). doi:10.26717/BJSTR.2018.04.000986 (24)
- Qazi M, Saqib N, Gupta S. (2019). Knowledge, attitude and practice of family planning among women of reproductive age group attending outpatient department in a tertiary centre of Northern India. *Int J Reprod Contracept Obstet Gynecol.*;8(5):1–9. doi:10.18203/2320-1770.ijrcog20191531(38)
- Gupta V, Mohapatra D, Kumar V. (2016). Family planning knowledge, attitude, and practices among the currently married women (aged 15–45 years) in an urban area of Rohtak district, Haryana. *Int J Med Sci Public Health.* 2016;5:627–632. doi:10.5455/ijmsph.12082015.
- Samuel A, Uliso A, Olle B, Dambe D, Nigatu M, Sorato MM. (2017). Assessment of modern contraceptive method utilization and associated factors among women of reproductive age group at Arba Minch Town, SNNPR, Ethiopia. *EC Gynaecol.* ;6(2):36–53.(30)
- Adeniji Oluwashola David :Big Data: (2016). A Computing Model for Knowledge Extraction on Insurgency Management. International Conference on Information and Communication Technology and Its Applications (ICTA), pp 52-55.
- Ifedotun Roseline Idowu, Adeniji Oluwashola David, Shehu-Alim Elelu, Togun Oluwapelumi Adefisayo: (2021). Prediction of Breast Cancer Images Classification Using Bidirectional Long Short Term Memory and Two-Dimensional Convolutional Neural network: Transaction on Networks and Communications -Vol.9,No.4.pp14-18.
- Adeniji Oluwashola David, Akinola Olaniyan Eliais: A Secured Text Encryption with Near Field Communication (NFC) using Huffman Compression: International Journal of Engineering and Applied Computer Science 2022, Volume: 04, Issue: 02,.

