Research Article

Determinants of maternal autonomy in Nigeria

Abstract

Utilization of health care services by maternal women has been shown to prevent most maternal deaths and health issues faced by women in Nigeria. Therefore, this study examined the level of maternal autonomy and the determinants of maternal autonomy in utilizing health care services in Nigeria. Data on 10193 married women, living in Nigeria were sourced from Nigeria Demographic and Health Survey 2013. Data were disaggregated into six Geo–political zones (North Central, North West, North East, South East, South–South, and South West). Information on socio–economic characteristics, level of maternal autonomy, and factors influencing maternal autonomy were obtained. Data were analysed using descriptive statistics, composite score analysis, ordered probit regression.The mean age was 30 years. 54.61% of the maternal women have low level of autonomy, 42.92% of the respondents have intermediate autonomy and 2.46% of the respondents have high autonomy. Majority of the respondents have low autonomy. About determinants of maternal autonomy, age of respondents was significant and positively related to maternal autonomy at 1% that is, increase in age leads to increase in maternal autonomy. The household size of respondents was significant at 1% and negatively related to maternal autonomy. Respondents who are working have higher autonomy than respondents who are not working. Respondents who have husbands that are working have lower autonomy when compared to those whose husbands are not working. Also, respondents who have husbands with formal education have high autonomy than those whose husbands are not working. Respondents in north–east and north–west have lower autonomy when compared to north–central while respondents in south–east, south–south and south–west have higher autonomy when compared to respondents in north–central. Efforts should be made by governmental and non–governmental organisations to orientate the women and their spouses on the need for women to be autonomous on issues relating to their health.

Keywords: autonomy, women, determinants, Nigeria

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Introduction

Globally, more than half a million women die every year as a result of issues relating to pregnancy and childbearing. The highest burden of maternal mortality in the globe was recorded in Africa, and sub–Saharan Africa, which contributes approximately 98% of the maternal mortality in the globe.[1] Nigeria is a leading contributor to the maternal death figure in sub–Saharan Africa as a result of her high maternal mortality ratio which is 1,100 higher than the regional average.[2] The use of maternal health care services such as antenatal care visits, delivery at hospitals and health centres, postnatal care received from skilled health workers are the effective ways of decreasing the risk of maternal mortality and morbidity.[3–7]

According to Bloom et al.,[8] maternal autonomy is defined as control over finances, decision–making power, and extent of freedom of movement by women in a society. Also, women autonomy can be defined as a concept that has several dimensions which include both control over resources (that is, physical, human, intellectual, and financial) and ideologies (such as, beliefs, values, attitudes, internal strength, self–esteem, and self–confidence).[9] It was found out that some direct measures of women autonomy which include accessibility and control over resources, participating in economic decisions, self–esteem, and freedom of movement (ability to move freely without restrictions) play major role in the utilization of maternal health care services.[10,11]

Most of the deaths and health issues faced by women can be prevented if women effectively utilize health care services.[12] Women found in developing countries (in which Nigeria is inclusive) do not effectively make use of health care services due to some reasons such as, lack of adequate transportation, cultural beliefs, fear of health facility treatments, unavailability of skilled personnel and lack of adequate decision making power (autonomy) on issues pertaining to their health.[13] Some women need to take permission from their husband/partners or mother–in–laws before decisions pertaining to their health and that of their babies can be taken which could be either late or permission might not be granted by their spouses especially if the spouse is not well educated.[14]

Also, some African cultural beliefs and practices encourage maternal women's low autonomy and this has adversely affected the health of the women and also some cultural practices (especially northern Nigeria) does not encourage their women going to health centres for medical care, they consider it unacceptable.[15] Some studies have examined the relationship that occurs between women's autonomy and utilisation of any or all of the maternal health care services, and have found association between them[16–21] but few studies have been carried out on the level of maternal autonomy in Nigeria and the factors that affect the autonomy. Thus, this study examines the following objectives: to determine the level of maternal autonomy in Nigeria and to evaluate the factors influencing maternal autonomy in Nigeria.

Materials and methods

Scope of study

The scope of study for this research was Nigeria.

Source of data

The study made use of secondary data. The data used was Nigeria Demographic and health surveys (DHS) data set 2013. The 2013Nigeria Demographic and Health survey (NDHS) was

implemented by the National Population Commission. It is the fifth in the series of Demographic and Health surveys conducted so far in Nigeria.

Target population, sampling procedure and sample size

Married women between the ages of 15 to 49 were the target population of the study. The sample was selected using a stratified three–stage cluster design. Fixed samples of 45 households were selected per cluster. A representative sample of 40,680 households was selected for the survey, with a minimum target of 943 completed interviews per state. A total of 39,902 women age 15–49 were identified as eligible for individual interviews. However, 98% of them in both rural and urban area were successfully interviewed. 15,545 women were interviewed in the urban area while 23,403 were interviewed in the rural area. The analysis focussed only on married women or women living with a male partner of reproductive age (15–49 years) who had a live birth within 5 years before the survey. After cleaning and sorting data which are missing, 10,193women data in both rural and urban areas were used for this study.

Analytical procedure

The study utilized descriptive statistics, composite score analysis and ordered probit model to capture the objectives. The descriptive statistics involves the use of frequency and charts. It was used to capture the socio–economic characteristics of the women. Composite score analysis was used to measure the level of maternal autonomy. Four main questions that have to do with decision making involving women were used to capture women's autonomy. The questions are: Who usually makes decision about health care? Who usually makes decisions about household purchases? Who makes decisions about visits to relatives? Who makes decisions on how partners' earnings will be used?

Responses to all these questions were measured using the following: Women alone, Women and husband alone, Women and other person, husband alone and someone else. The categorisation into high, intermediate and low level of autonomy was achieved using composite score analysis as used by Pooja, et al.[22] A binary scale of 1=yes, 0=no, was used to rate the women. A woman's autonomy can score a maximum of 4 and minimum of 0. Score 4 is assigned if the decision is taken by the woman alone; 3 if the decision is taken by the woman and husband; 2 if the decision is taken by the woman and another person; 1 if the decision is taken by the husband alone; 0 if the decision is taken by someone else.

High autonomy= between 4 points to (mean + standard deviation) points

Intermediate autonomy= between upper and lower categories

Low autonomy= between (mean – standard deviation) points to 0 points.

Ordered probit model was used to capture the factors influencing maternal autonomy in Nigeria. This regression allows more than two discrete outcomes that are ordered. It is a model that is used to model relationships between polytomous response variable which has an ordered structure and a set of regressors. Using the composite scores from the indicators of autonomy above, the level of maternal autonomy are categorized into high, intermediate and low levels which corresponds to the censoring values 2,1 and 0 respectively .The model is built around a latent regression just as the binomial probit model.

$$\text{Let } Y^* = X\beta + {}^a$$

$$Y^* = 0 \text{ if } Y^* \le 0$$

$$Y^* = 1 \text{ if } 0 < y^* \le \mu_1$$

$$Y^* = 2 \text{ if } \mu_1 < y^* \le \mu_2$$

Where, Y^* (i=0,1,2) are the unobservable threshold parameters that were estimated together with other parameters in the model. Like the models for binary data, the probabilities for each of the observed ordinal response, that is, the level of maternal mortality of the women in this study are grouped into three, which are low, intermediate and high with ordinal values 0,1,2.

$$\text{prob } (Y^* = 0) = P(Y^* < 0) = P(\beta'X + \varepsilon i < 0) = \phi(-\beta'X)$$

$$\text{prob } (Y^* = 1) = \phi(\delta 1 - \beta'X) - \phi(-\beta'X)$$

$$\text{prob } (Y^* = 2) = 1 - \phi(\delta 1 - \beta'X)$$

The marginal probabilities could therefore be calculated from the probit model as:

$$Y^* = b_0 + b_1x_1 + b_2x_2 + b_3x_3 + b_4x_4 + \ldots\ldots\ldots + x_{11}$$

Y^*= level of autonomy (high=2, intermediate=1, low=0)

X_1= Age of women (years)

X_2= No formal education (yes=1, no=0)

X_3= Primary education (yes=1, no=0)

X_4= Secondary education (yes=1, no=0)

X_5= Tertiary education (yes=1, no=0)

X_6= Employment status of women (employed=1, unemployed=0)

X_7= Employment status of household head (employed=1, unemployed=0)

X_8= Wealth index (poor=1, rich=0)

X_9=Type of residence (rural=1, urban=0)

Results and discussion

Socio–economic characteristics

In table 1, 29.8% of the women across geopolitical zones fall within the age category 15–24 years, 48.77% are within 25–34 years while 21.5% are within 35–49 years. The minimum age is 15 years while the maximum age is 49 years. The overall mean age is 30 with a standard deviation of 6.9. The highest mean age is found in South West while the lowest is found in South East. About forty six percent of the women across geopolitical zones are members of households with 1–5 persons, 43.3% have 6–10 members and 11.2% have greater than 10 persons in their household.

Majority of the women are found in household size with 1–5 persons. In the south west region, most of the women are found in household size of 1–5 persons. In North East, North West and South East, majority of the women have household size of 6–10 persons while north central, South South, and South West have majority of their Women in household size of 1–5 persons.

The distribution of the educational status of the women also shows that 29.0% of the women have no formal education, 24.35% have primary education, 36. 3% have secondary education and 10.3% have tertiary education. Majority of the women in north central, south east

and south west have secondary education while majority of women in north east, north–west have no formal education. This study (using 2013 DHS) shows that the highest percentage of women with tertiary education is found in the south west and the lowest is found in the North West.

Table 1 Distribution of women according to their socio economic characteristics

Variable	North central	North East	North West	South East	South-South	South West
Age						
15-24	6.17	7.42	7.22	2.35	2.76	3.87
25-34	9.29	7.92	7.41	6.18	6.49	11.48
35-49	3.8	3.43	3.25	3.11	3.1	4.76
Household size						
1-5persons	8.9	6.73	5.01	5.99	6.12	12.82
6-10persons	8.67	7.91	6.06	8.12	5.6	6.89
Greater than 10persons	1.68	4.13	0.57	3.76	0.63	0.39
Women's educational status						
No formal5.62		10.1	10.76	0.47	0.53	1.55
Primary	5.11	3.97	3.53	3.17	3.57	5
Secondary	6.14	3.75	3.11	6.47	6.79	10.03
Tertiary	2.38	0.94	0.47	1.54	1.46	3.52
Womens occupation						
Unemployed	4.17	7.23	5.44	2.3	2.11	2.36
Services	4.21	4.49	4	2.93	6.54	2.83
Traders	7.05	4.92	8.21	4.84	9.91	4.18
Agriculture	3.83	2.13	0.23	2.29	1.54	2.28

Source: Data Analysis, Nigeria 2018

Level of maternal autonomy

In table 2, 54.61% of the maternal women have low level of autonomy, 42.92% of the women have intermediate autonomy and 2.46% of the women have high autonomy. Majority of the women have low autonomy. Also, most of the women in North Central, North East and North West have low maternal autonomy while majority of the women in South–South, South West and South East have intermediate maternal autonomy. This shows that women in the North region are worse of in relation to autonomy on how they spend money, their health and even visit to relatives. Their level of autonomy is lower in relation to those in the south. This is in line[23] with findings, which shows that women in the northern region have lower autonomy when compared to those in the southern region.

Table 2 Distribution of level of maternal autonomy across Geopolitical Zones in Nigeria

Level of maternal autonomy	North Central	North East	North West	South-South	South West	South East	Total
Low	10.08	13.99	15.46	4.55	5.41	5.12	54.61
Intermediate	8.81	4.71	2.26	7.46	13.44	6.25	42.92
High	0.37	0.06	0.12	0.34	1.26	0.27	2.46
Total	19.26	18.77	17.88	12.35	20.10	11.65	100

Source: Data Analysis, Nigeria 2018

Factors influencing maternal autonomy in Nigeria

Table 3 talks about the factors that influence maternal autonomy in Nigeria. Ordered probit model was used in this study to identify the factors. The maternal autonomy which is the dependent variable was grouped into low autonomy, intermediate autonomy and high autonomy (1 2 3) respectively. The independent variables are age, household size, years of formal education, wealth index, Women's occupation, husband's occupation, husband's education level, region and sector.

Table 3 Factors influencing maternal autonomy of women in Nigeria

Women Autonomy Index	Coefficient	Std. Err.	Marginal effects (y=0)	Marginal effects (y=1)	Marginal effects(y=2)
Age	0.0148***	0.0022134	-0.0057	0.0055	0.0003
Household size	-0.0152***	0.0046669	0.0059	-0.0057	-0.0003
Years of Formal Education	-0.0015	0.0066823	0.0006	-0.0006	0
Wealth Index					
(b: poorest)					
Poorer	0.0764	0.0615178	-0.0284	0.0275	0.0009
Middle	0.1630***	0.0627242	-0.0615	0.0594	0.0021
Richer	0.2193***	0.0688921	-0.0834	0.0803	0.0031
Richest	0.3332***	0.0763815	-0.1284	0.1229	0.0055
Women's Occupation					
(b: not working)					
Services	0.6776***	0.0428364	-0.2463	0.2379	0.0084
Traders	0.6599***	0.0400204	-0.2393	0.2314	0.0079
Farming	0.6496***	0.0539484	-0.2352	0.2275	0.0077
Husband's occupation					
(b: not working)					
Services	0.5969***	0.1263797	0.2341	-0.2126	-0.0215
Traders	0.6209***	0.1296855	0.2435	-0.2216	-0.0219
Farming	0.5847***	0.1304458	0.2294	-0.2081	-0.0213
Husband's education level					
(b: no formal education)					
Primary	0.3627***	0.0482057	-0.1369	0.1319	0.0051
Secondary	0.3842***	0.0470091	-0.1455	0.1399	0.0055
Higher	0.2714***	0.0541919	-0.1011	0.0978	0.0033
Region(b: north central)					
North East	0.3951***	0.0480464	0.1495	-0.1438	-0.0057
North West	0.8257***	0.0513811	0.2815	-0.2739	-0.0077
South East	0.0886*	0.0512918	-0.0353	0.033	0.0022
South-South	0.2362***	0.0490339	-0.094	0.0869	0.0071
South West	0.4264***	0.0442614	-0.1679	0.1518	0.0162
Sector(b: urban)					
Rural	0.1095***	0.0349223	0.0426	-0.0407	-0.0019
/cut1	0.7005305	0.1607453			
/cut2	2.986321	0.1635672			
LRChi²(24)=2424.62					

Source: (Data Analysis, Nigeria 2018 b: base category

*** P≤0.01 significant at 1%, *P≤0.1 significant at 10%

Distribution according to the occupation of the women shows that 23.6% of the women are not working, 25% are engaged in rendering of services as occupation, 39.1% are traders and 12.3% are involved in agriculture. Most of the women in north central, North West, south west, south–south and south east are traders, while majority of women in North East are not working. The unemployed are more in the North East relative to others while trading is predominant in the North West.

Age

Age of the women was significant at1% and positively related to maternal autonomy. A unit increase in the age of women will lead to the women having higher autonomy than younger women. That is, as the age of women increases, they have higher level of maternal autonomy on health care utilization. According to Jejeebhoy SJ et al.,[24] women's age and family structure are strong factors influencing maternal autonomy, that is, older women have higher maternal autonomy. A related study carried out in Nepal showed that increase in age was directly associated with the likelihood of women's participation in household decision making.[25]

The marginal effect shows that an increase in the age of the Women by one year would reduce the probability of the women being in the low level of autonomy by 0.6% whereas it will increase the probability of the Women being in intermediate and high levels of autonomy by 0.6% and 0.03% respectively.

Household size

The household size of the women was significant at 1% and negatively related to maternal autonomy. A unit increase in household size will lead to a decrease in the maternal autonomy, that is, women with larger household members have lower autonomy than women with small household size. The implication is that the larger the household size, the lower the level of maternal autonomy. This result is in accordance with the findings of[26] which states that women in household with lower members or in nuclear families have higher maternal autonomy than women with larger household members. The marginal effect shows that a unit increase in the household size of women will lead to a 0.6% increase in the probability of the Women being in low level of maternal autonomy while it will reduce the probability of the Women being in intermediate and high levels of autonomy by 0.57% and 0.03% respectively.

Occupation

Women who were engaged in services as their occupation have higher autonomy than women who are not working. Service was positive and significant at 1% implying that the level of maternal autonomy increases with women engaging in services, that is, the more the involvement of women in services, the higher their level of maternal autonomy as compared to women who are not working.

Women who are traders also have higher autonomy as compared to Women who are not working. Trading was positive and significant at 1% which means that the level of maternal autonomy also increases with an increase in the Women who are involved in trading as occupation. Also, women who are farmers have higher autonomy as compared to those who are not working.

Farming was positively related to maternal autonomy and significant at 1%. This implies that the more involvement of the Women in farming activities, the higher their level of maternal autonomy. Generally, the result shows that women who are working and have a source of income have higher level of maternal autonomy when compared with women who are not working.

According to Woldemicael G[27] in a related study, employment is considered as an important factor for improving women's overall status in the society. Also, a study conducted in Guatemala explored that women who were employed in paid jobs are significantly more likely to participate in decision making than those who were not paid for their employment.[28]

The marginal effect shows that engaging in services as a means of livelihood reduces the likelihood of the Women falling in the low level category of maternal autonomy by 24.6% while it increases the likelihood of the women being in the intermediate and high levels of maternal autonomy by 23.8% and 0.8% respectively as against women who are not working at all.

Also, engaging in trading activities will decrease the likelihood of being in the lower level of maternal autonomy by 23.9% while it increases the likelihood that the women would be in the intermediate and high levels of maternal autonomy by 23.1% and 0.8% respectively as against women who are not working. Women who were involved in farming activities have a reduced likelihood of being in the lower level of maternal autonomy by 23.5% while it increases the probability of the women being in the intermediate and high levels of maternal autonomy by 22.8% and 0.9 respectively as against women who were not working. This implies that women who are working fall majorly into the intermediate and high levels of maternal autonomy as against women who are not working.

Region

Women in North East region have lower autonomy as compared with women in North Central. North east was negative and significant at 1%. This implies that women in the North East have lower maternal autonomy when compared with women in the north central. Women in North West region also have lower autonomy as compared with women in North Central. North West was positive and significant at 1% meaning that women in North West have lower maternal autonomy.

Women in South East have higher autonomy as compared to those in North Central. South East was positive and significant at 10%, that is, women in South East have higher maternal autonomy than those in the North Central. Women in south–south region have higher autonomy. South South was positive and significant at 1% that is, women in the South South have higher maternal autonomy than women in the North Central.

Women in the South West have higher autonomy as compared to those in the North Central and it is significant at 1%. In summary, women in South East, South South and South West have higher autonomy than women in North East and North West.

The marginal effects for the North East was positive and significant at 1% for low level of maternal autonomy while it was negative and significant at 1% for intermediate and high levels of maternal autonomy. For women in the North East, the probability of being in low level of maternal autonomy would increase by 14.9% while the likelihood of being in intermediate and high levels of maternal autonomy will reduce by 14.5% and 0.6% respectively as against women in the North Central.

The marginal effects for North West was positive and significant at 1% for low level of maternal autonomy while it was negative and significant at 1% for intermediate and high levels of maternal autonomy. The probability of the women being in the low level of maternal autonomy will increase by 28.15% while the likelihood of being in intermediate and high levels of maternal autonomy would

reduce by 27.39% and 0.8% respectively. For women in the South West, the likelihood of being in low level of maternal autonomy would decrease by16.8% while the likelihood of being in intermediate and high levels of maternal autonomy would increase by15.18% and 1.62% respectively as against women in the North Central.

The marginal effects for South East was negative and significant at 10% for low level of maternal autonomy while it was positive and significant at 10% for intermediate and high level of maternal autonomy. The probability of women being in the low level will reduce by 3.5% while the probability of being in intermediate and high maternal autonomy will increase by 3.3% and 0.2% respectively. For women in the South South, the likelihood of being in the low level of maternal autonomy will reduce by9.4% while the probability of being in intermediate and high levels of maternal autonomy will increase by 8.69% and 0.7% respectively as against women in the North Central.

Place of residence

Women in rural sector have lower autonomy than women in urban sector. Rural sector was negative and significant at 1%. This implies that women in the rural area have lower maternal autonomy. The marginal effect for rural sector was positive and significant at 1% for low level of maternal autonomy while it was negative and significant at 1% for intermediate and high levels of maternal autonomy. For women in the rural sector, the likelihood of being in the low level of maternal autonomy would increase by 4.26% while the likelihood of being in intermediate and high levels of maternal autonomy decreases by 4.1% and 0.2% respectively as against women in the urban sector.[29–31]

Summary of major findings

For the age of women, 29.79% are within the age of 15–24 years, 48.77% are within 23–34 years while 21.45% are within 35–49 years. The educational status of the women showed that 29.03% of the women have no formal education, 24.35% have primary education, 36.29% have secondary education and 10.31% have tertiary education. The result revealed that 54.61% of the maternal women have low level of autonomy, 42.92% of the women have intermediate autonomy and 2.46% of the women have high autonomy. About factors influencing maternal autonomy, age of women was significant and positively related to maternal autonomy at 1% that is, increase in age leads to increase in maternal autonomy. The household size of women was significant at 1% and negatively related to maternal autonomy, that is, increase in household size leads to decrease in maternal autonomy. Women who are working have higher autonomy than women who are not working. Women in North–East and North West have lower autonomy when compared to North Central while women in South East, South South and South West have higher autonomy when compared to women in North Central. Women in the rural sector have lower autonomy when compared to those in urban sector.

Conclusions and recommendations

The level of women autonomy and factors influencing maternal autonomy were considered in this study. Composite score analysis was used to determine the level of maternal autonomy while ordered probit model was used to influence the factors that determine the maternal autonomy across geopolitical zones in Nigeria. Majority of the women have low autonomy. Also, women who are working have higher autonomy compared to those who are not working. Women in the North East and North West have lower autonomy when compared

to women in the other geopolitical zones of the country. Also women who are educated have higher autonomy compared to women who are not educated. Women in rural areas have lower autonomy when compared to women in urban areas.

There should be enlightenment programs by governmental and non–governmental organisations on the need for women to have autonomy It is essential to improve the educational system of Nigeria through increased school funding in order to overcome the financial problem of parents involvement in educating younger ones.

Conflicts of interest

The authors report no conflict of interest

Ethical permission

No ethical permission was gotten because secondary data was used for this study and not primary data where ethical permission is necessary.

Limitations of the study

The limitations experienced in this study is as a result of some missing responses on women's autonomy compared to other information in NDHS data.

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