



Socio-demographic Correlates of Maternal Health Services' Utilization among Childbearing Mothers in Enugu State Rural Communities

*¹Chinelo L. Okoye, ²Samuel I. C. Dibia

^{1,2}Department of Human Kinetics and Health Education, University of Nigeria, Nsukka.

*Corresponding author: chinellokoye21@gmail.com

Abstract

The study investigated the correlates of maternal health (MH) services utilization among childbearing mothers (CBMs) in selected rural communities in Enugu State. Correlational survey design was adopted for the study. The population of the study comprised of all the CBMs in selected rural communities in Enugu State estimated at about 650,000. A sample size of 2000 CBMs was drawn using multistage sampling procedure. Maternal Health Services Utilization Questionnaire (MHSUQ) was used for data collection. Face validity of the instrument was established by five experts. The internal consistency of the instrument was established using Cronbach's alpha (.83). Mean, standard deviation, and Pearson product moment correlation were used to answer the research questions. Pearson product moment correlation was used to test the null hypothesis at 0.05 level of significance. Results showed low utilization of MH services. Furthermore, there was a weak positive relationship between maternal age ($r = .119$) and a weak negative relationship between parity ($r = -.021$) and utilization of MH services. There was a significant relationship between maternal age ($r = .119$, $p = .048 < .050$) and utilization of MH services. Also, there was no significant relationship between parity ($r = -.021$, $p = .726 > .05$) and utilization of MH services. The study recommended that awareness programme should be mounted to enlighten CBMs on the dangers of not utilizing MH services required of them, and noting that having more than three living children does not make them experts in handling their maternal and reproductive health issues.

Keywords: Maternal health services, utilization, childbearing mothers, age, parity, Enugu State

Introduction

Mothers constitute vulnerable groups in the population with regard to health. In the developing countries, a remarkable number of women experience life-threatening and other serious health problems related to pregnancy or childbirth as complications of pregnancy (Okpala et al., 2019). Many women die from pregnancy-related diseases in both developed and developing countries (Onunze et al., 2021). In 2020 maternal mortality was unacceptably high, with a global record of about 287,000 preventable death resulting from and occurring



during pregnancy, childbirth and postpartum period, vast majority of these deaths (95%) occurred in low and lower middle-income countries (World Health Organization [WHO], 2023).

In sub-Saharan Africa, maternal and child mortality remains major public health issues. Of the 810 women that died every day, nearly 94 per cent of these deaths occur in low and lower-middle income countries, and the vast majority of these deaths (two-thirds) occur in sub-Saharan African countries, making it the region with the greatest maternal mortality burden (Adams, 2021). Nigeria has the second highest estimated maternal deaths globally, and accounts for one of the highest neonatal mortality rates in Africa (United Nations Inter-Agency Group for Child Mortality Estimation [UN IGME], 2018). The risk of women in a developing countries dying from maternal-related causes during their lifetime is about 80 times higher compared to women living in developed countries (Okpala et al., 2019). In Enugu State, maternal and child death was reported high, with women and neonates dying because of poor access to basic health care, antenatal care and assistance during delivery by trained health personnel, lack of essential drugs, and equipment (Onunze & Philip, 2022). These outrageous deaths have been attributed to poor/lack of utilization of MH care services.

Maternal health services are services that are made available in order to promote, maintain, and preserve maternal health. Maternal health according to WHO (2023), is the health of women during pregnancy, childbirth and the postnatal period. Maternal health care services which are provided in order to maintain maternal health include services which are provided before and during pregnancy, delivery and post natal period. Maternal health care services, therefore, comprise pre-natal care, childbirth and postnatal care (Olonade et al., 2019). Maternal health services include antenatal care (ANC), skilled birth attendance (SBA) and, postnatal care (PNC). Preconception care (PCC) has also been identified as important aspect of maternal health services (Nuamah et al., 2019).

Preconception care (PCC) is one of the important MH services rendered to childbearing mothers in order to achieve successful pregnancy and childbirth. Preconception care can be seen as specialized care targeted at women of reproductive age before pregnancy in order to detect, treat, and counsel them about pre-existing medical conditions that may militate against safe motherhood (Ojifinni & Ibisomi, 2020). Antenatal healthcare is defined by the WHO as the “care a pregnant mother receives before birth”, and involves education, screening, counseling, treatment of minor ailment, and immunization services (Akowuah et al., 2018). According to UNICEF (2022), antenatal care can be a source of micronutrient supplementation, treatment of hypertension to prevent eclampsia, immunization against tetanus, and human immunodeficiency virus (HIV) testing, in addition to medications to prevent mother-to-child transmission of HIV in cases of HIV-positive pregnant women. Skilled birth attendance, which is a health service provided to pregnant women particularly during delivery, is defined as the process by which women are provided with adequate care



during labour, delivery, and the early postpartum period by skilled health workers, such as doctors, nurses and midwives (Jacobs et al., 2017). Postnatal care services (PNC) are fundamental component of the continuum of MH care, and key to achieving the Sustainable Development Goals (SDGs) on reproductive, maternal and child health, including targets to reduce maternal mortality rates and end preventable deaths of newborns (WHO,2022). According to Wudineh et al. (2018), WHO defined PNC as a care given to the mother and her newborn baby immediately after the birth of the placenta and for the first 42 days of life. Adequate utilization of these services has been implicated to improve maternal health and prevent high maternal mortality and morbidity.

Utilization of MH services which involves making practical and effective use of health care services by CBMs will proffer opportunity for prevention, early detection, diagnosis and treatment of health problems that might lead to maternal mortality or morbidity. However, utilization of MH services may be influenced by factors such as maternal age, parity, marital status, mother's education attainment, mother's occupation, birth order of child, access to media, women's decision making, household wealth index, area of residence (urban or rural), distance to health facilities, months of first antenatal visit, and health insurance coverage. The present study, however, explored only maternal age and parity as factors that may influence the utilization of MH services among CBMs.

Maternal age which describes the age of the mother at the time of delivery influences utilization of maternal health services. According to Chamileke (2017), advanced maternal age is associated with increased use of postnatal services and this could be partly explained by the fact that older women understood the importance of postnatal services and were more likely to utilize them than younger women. Parity is defined as the number of times that a woman has given birth to a foetus with a gestational age of 24 weeks or more, regardless of whether the child was born alive or still born (Tidy, 2019). Parity could influence utilization of MH services among CBMs.

Childbearing mothers are those women within the reproductive age of 15-49years that have either given birth or are currently pregnant. They are part of the vulnerable population whom MH services are provided for. According to Avachat and Bimbaum (2022), CBMs are those women within the age of 15-49years. They are prone to various reproductive health challenges which are preventable if there is adequate utilization of MH services. In this study CBMs are those women within the age of reproduction (15-49 years) who are either expecting or nursing a child.

Non utilization of health services is a major contributor to high maternal mortality. All mothers are entitled to affordable, high-quality health care before, during and after pregnancy. Every pregnant woman are expected to have eight or more antenatal contact, attended by skilled personnel and receive early routine postnatal care within two days.



Regrettably, these services are provided, but the childbearing mothers are not utilizing them as expected. Of the eight times antenatal care visits that are recommended, most childbearing mothers appear not to even attend a minimum of four antenatal visit, and most do not utilize different family planning methods available to them. In Enugu state, maternal and child mortality is quite high and this seems to be associated with poor access to basic health care, antenatal care and assistance during delivery by trained health personnel. Therefore, this study investigated maternal age and parity as correlates of MH services utilization in Enugu rural communities.

Specifically, the study determined the: status of MH service's utilization; relationship between MH services' utilization and age; and relationship between MH services' utilization and parity among CBMs in Enugu rural communities. Study findings from the study would be of immense benefit to different health practitioners (doctors, nurses, and skilled birth attendants), health educators, governments, researchers, non-governmental organization, and ministries of health. It will add to source of literature and provide information that could assist in policy making and intervention programmes to boost MH services utilization.

Research Questions

The following research questions were posed to guide the study.

1. What is the status of MH services' utilization among CBMs in Enugu rural communities?
2. What is the relationship between MH services' utilization and maternal age among CBMs?
3. What is the relationship between MH services' utilization and parity among CBMs?

Hypotheses

The following null hypotheses were formulated to guide the study and were tested at 0.05 level of significance.

1. There is no significant relationship between the MH services' utilization and maternal age among CBMs in Enugu rural communities.
2. There is no significant relationship between MH services' utilization and parity among CBMs in Enugu rural communities.

Methods and Materials

The study adopted a correlational survey design. The study was conducted in some selected Enugu rural communities, Nigeria (Olo (Ezema), Amansi-Odo (Ndiuno), Iwollo Oghe (Obunagu), Owa (Ezi-Owa); Obioma (Abba), Nsude (Umualor), Umuabi (Umunwe), Egede (Amaozalla); Obukpa (Odin), Opi (Opi-Agu), Ibagwa-Ahu (Ugwu-Ohugu); Inyi



(Nkwerri-nyi), Ugwuoba (Aguabosi), Achi (Ahani); Obollo-Afor (Ugbabe), Amalla (Ifuroka), Ezimo (Umuelo); Ukpata (Umumbosi), Nrobo (Ofumu), Ugbene (Isi-Uvuru); Okpanku (Amaete), Nenwe (Umuagam), Ndeaboh (Uhuogiriu); Amechi (Ndiaga), Ugwuaji (Umunnaji Ngene), Akuke (Atagwwu); Ituku (Umunevota). Nkem (Isiekwue), Obeagu (Ebenebe); Nike (Nchetanche), Ogwogo (Adaeze); Amagunze (Umu Okpara), Neke (Isienu), Ikem (Amu-Aram); Oruku (Amaeke), Nara (Umueze), Owo (Asisi); Amuri (Obeagu), Obe (Umuike Owo), Ozalla (Ezi); Itchi (Amakpuru), Iheaka (Eke Utara-Iheaka), Alor Agu (Umuavulu); Umu-Itodo (Ikpiga Enugu), Umuozzi (Umuogbo-Ekpshi), Ibagwa Aka (Amaebo); Ozalla (Nnaru), Ikolo (Ikoloani), Aku (Amogwu); Ogui (Umunevo). The population of the study comprised of all CBMs (15-49years) in the selected rural communities, with a population size of about 650,000. A sample size of 2000 respondents were selected and used for the study. Multistage stage sampling procedure was employed to arrive at the study sample. In the first stage, a simple random sampling of balloting without replacement was employed to select 50 rural communities in Enugu State. Stage two involved selection of 50 health facilities, one each from the randomly sampled communities. The third stage involved drawing, 40 CBMs from each of the 50 health facilities using convenience sampling technique. Convenience sampling technique was employed due to its flexibility and in order to expedite data collection.

A researcher's structured "Maternal Health Services Utilization Questionnaire" (MHSUQ) was used for data collection. The validation of the instrument was done by five experts from the Department of Human Kinetics and Health Education, University of Nigeria Nsukka. The internal consistency of the MHSUQ was established using Cronbach's alpha, which yielded an index of .83. 2000 copies of questionnaire were administered to the respondents by the researchers and three research assistants. The instruction on how to answer the questionnaire were communicated prior to administration and the consent of the respondents was sought before administration. Out of the 2000 copies of MHSUQ administered, only 1,843 had complete information. This represents 92% response rate. Data analysis was done with the aid of the statistical package for social sciences version 25 (SPSS version 25). Descriptive statistics such as mean, standard deviation, and Pearson product moments correlation were used to answer research questions while Pearson product moments correlation were used to test the null hypothesis at 0.05 level of significance. Key for interpretation of the relationship between maternal health services utilization and socio-demographic variables (maternal age and parity) includes; $\pm 0.00 - 0.29$ = none to a weak relationship; $\pm 0.30 - 0.59$ = moderate relationship; $\pm 0.60 - 1.00$ = strong relationship.



Results

Table 1

Status of utilization of MH services among CBMs (n=1843)

| S/N | Status of utilization of the following MH services | \bar{x} | SD | Dec |
|-----|---|-------------|-------------|-----------|
| 1. | Health assessment service before pregnancy | 2.91 | 0.75 | M |
| 2. | Screening and treatment services against infectious diseases .e.g. HIV/AIDS, Syphilis | 1.22 | 0.72 | VL |
| 3. | Immunization services against diseases | 1.66 | 1.08 | VL |
| 4. | counseling services prior to pregnancy | 1.12 | 0.50 | VL |
| 5. | Nutritional services | 1.40 | 0.93 | VL |
| 6. | Health promotion and management services of pre-existing condition | 1.17 | 0.63 | VL |
| 7. | Health education services | 1.23 | 0.74 | VL |
| | Cluster for preconception services | 1.53 | 0.48 | VL |
| | Antenatal services | | | |
| 8. | Blood pressure measurement services | 3.22 | 0.91 | M |
| 9. | Urine testing services | 2.78 | 0.96 | M |
| 10. | Weight/height measurement services | 2.93 | 0.95 | M |
| 11. | Blood testing services | 2.65 | 0.94 | M |
| 12. | Fetal growth monitoring services | 2.58 | 0.87 | M |
| 13. | Tetanus vaccination services | 3.49 | 0.90 | H |
| 14. | Iron-folic acid supplement services | 3.43 | 0.82 | H |
| 15. | Malaria preventive services | 3.45 | 0.74 | H |
| | Cluster for antenatal services | 3.07 | 0.66 | M |
| | Delivery services | | | |
| 16. | Delivery at health facility | 2.71 | 1.16 | M |
| 17. | Vaginal examination | 3.26 | 0.88 | H |
| 18. | Obstetric examination services such as fetal heart rate, uterine size | 2.19 | 0.90 | L |
| 19. | Pelvic examination services | 1.95 | 1.09 | L |
| 20. | Appropriate hygiene services during deliver | 2.96 | 0.82 | M |
| 21. | Abdominal examination services | 3.40 | 0.87 | H |
| 22. | Placenta delivery services | 3.91 | 0.71 | H |
| | Cluster for delivery services | 2.91 | 0.55 | M |
| | Post natal services | | | |
| 23. | Assessment of bleeding and anemia | 1.47 | 1.00 | VL |
| 24. | Nutrition services | 1.22 | 0.66 | VL |
| 25. | Family planning services | 1.63 | 1.08 | VL |
| 26. | Vaccination services | 3.13 | 1.07 | M |
| 27. | Health education on breastfeeding | 2.62 | 1.08 | M |
| 28. | Vital sign and general condition assessment services | 1.56 | 0.85 | VL |
| | Cluster for postnatal services | 1.94 | 0.66 | L |
| | MH services _Utilization | 2.22 | 0.58 | L |



Note; VL= Very low, L= Low, M= Moderate and H= High

Key for the interpretation of the status of MH services utilization based on mean (\bar{x}):

Very low = 1.00-1.75; Low = 1.76-2.50; Moderate = 2.51 -3.25; High = 3.26- 4.00

Result in Table 1 shows that there is low utilization of MH services ($\bar{x} = 2.22$) among CBMs in the selected rural communities in Enugu State. The result also show a very low utilization of preconception services, low utilization of postnatal services, and moderate utilization of antenatal and delivery services among CBMs in Enugu State Communities.

Table 2

Correlation between utilization of MH services and maternal age (n=1843)

| S/N | MH Services | <25yrs (n=70) \bar{x} (SD) | 25-34yrs (n=400) \bar{x} (SD) | 35-44yrs (n=800) \bar{x} (SD) | 45+yrs (n=573) \bar{x} (SD) | r | Dec |
|-----|--|------------------------------------|---------------------------------------|---------------------------------------|-------------------------------------|--------------|------------|
| 1. | Health assessment service before pregnancy | 2.73 (0.74) | 2.77 (0.72) | 2.98 (0.77) | 3.03 (0.73) | .146 | +WR |
| 2. | Screening and treatment services against infectious diseases e.g. HIV/AIDS, syphilis | 1.07 (0.37) | 1.15 (0.55) | 1.29 (0.82) | 1.27 (0.80) | .093 | +WR |
| 3. | Immunization services against disease | 1.17 (0.46) | 1.66 (1.09) | 1.71 (1.12) | 1.80 (1.16) | .138 | +WR |
| 4. | Counseling services prior to pregnancy | 1.07 (0.25) | 1.15 (0.60) | 1.10 (0.45) | 1.16 (0.57) | .025 | +WR |
| 5. | Nutritional services | 1.17 (0.59) | 1.38 (0.88) | 1.45 (1.00) | 1.44 (1.01) | .074 | +WR |
| 6. | Health promotion and management services of pre-existing condition | 1.00 (0.00) | 1.24 (0.73) | 1.18 (0.62) | 1.17 (0.68) | .035 | +WR |
| 7. | Health education services | 1.13 (0.57) | 1.35 (0.88) | 1.19 (0.68) | 1.20 (0.72) | -.025 | -WR |
| | Cluster for preconception services | 1.33 (0.23) | 1.53 (0.50) | 1.56 (0.51) | 1.58 (0.46) | .124* | +WR |
| | Antenatal services | | | | | | |
| 8. | Blood pressure measurement | 3.23 (0.73) | 3.20 (0.97) | 3.27 (0.91) | 3.16 (0.91) | -.014 | -WR |
| 9. | Urine testing services | 2.90 (0.92) | 2.77 (1.00) | 2.77 (0.95) | 2.73 (0.95) | -.040 | -WR |
| 10. | Weight/height measurement services | 2.63 (1.07) | 2.94 (1.00) | 3.03 (0.93) | 2.88 (0.85) | .054 | +WR |
| 11. | Blood testing services | 2.47 (1.01) | 2.77 (0.96) | 2.62 (0.88) | 2.64 (0.98) | .006 | +WR |
| 12. | Fetal growth monitoring services | 2.53 (0.90) | 2.62 (0.99) | 2.54 (0.86) | 2.64 (0.74) | .018 | +NR |
| 13. | Tetanus services | 3.33 (0.99) | 3.37 (1.05) | 3.61 (0.79) | 3.47 (0.85) | .072 | +WR |
| 14. | Iron-folic and supplement services | 3.40 (0.89) | 3.35 (0.86) | 3.51 (0.77) | 3.41 (0.83) | .029 | +WR |
| 15. | Malaria preventive services | 3.57 (0.82) | 3.35 (0.86) | 3.46 (0.71) | 3.47 (0.59) | .005 | -WR |
| | Cluster for antenatal services | 3.01 (0.51) | 3.05 (0.74) | 3.10 (0.68) | 3.05 (0.58) | .022 | +WR |
| | Delivery services | | | | | | |
| 16. | Delivery at health facility | 2.50 (1.33) | 2.83 (1.10) | 2.69 (1.19) | 2.69 (1.08) | .008 | WR |
| 17. | Vaginal examination | 3.03 (1.16) | 3.10 (0.90) | 3.38 (0.80) | 3.36 (0.80) | .141* | +WR |
| 18. | Obstetric examination services such as fetal heart rate, uterine services | 2.00 (0.87) | 2.31 (0.93) | 2.21 (0.85) | 2.11 (0.96) | -.010 | -WR |
| 19. | Pelvic examination services | 1.97 (1.22) | 2.08 (1.02) | 1.87 (1.09) | 1.94 (1.10) | -.040 | -WR |
| 20. | Appropriate hygiene services during delivery | 2.90 (0.76) | 2.79 (0.84) | 3.08 (0.78) | 2.98 (0.86) | .084 | +WR |
| 21. | Abdominal examination services | 3.03 (1.22) | 3.23 (1.03) | 3.56 (0.66) | 3.48 (0.73) | .178** | +WR |
| 22. | Placenta delivery services | 3.70 (0.92) | 3.92 (1.11) | 3.96 (0.30) | 3.89 (0.54) | .059 | +WR |



| | | 2.73 (0.58) | 2.89 (0.58) | 2.97 (0.53) | 2.92 (0.51) | .090 | +WR |
|-----|---|--------------------|--------------------|--------------------|--------------------|--------------|------------|
| | Cluster for delivery services | | | | | | |
| | Postnatal services | | | | | | |
| 23. | Assessment of bleeding and anemia | 1.33 (0.88) | 1.35 (0.88) | 1.60 (1.12) | 1.45 (0.94) | .062 | +WR |
| 24. | Nutrition services | 1.30 (0.70) | 1.21 (0.63) | 1.23 (0.68) | 1.19 (0.64) | -.037 | -WR |
| 25. | Family planning services | 1.40 (0.86) | 1.55 (1.00) | 1.68 (1.15) | 1.73 (1.14) | .094 | +WR |
| 26. | Vaccination services | 2.80 (1.32) | 3.04 (1.19) | 3.14 (0.97) | 3.34 (0.95) | .144* | +WR |
| 27. | Health education on breastfeeding | 2.33 (1.24) | 2.39 (1.14) | 2.74 (0.97) | 2.78 (1.08) | .156** | +WR |
| 28. | Vital sign and general condition assessment | 1.47 (0.82) | 1.58 (0.92) | 1.65 (0.88) | 1.42 (0.71) | -.021 | -WR |
| | Cluster on postnatal services | 1.77 (0.63) | 1.85 (0.66) | 2.01 (0.67) | 1.99 (0.64) | .112 | +WR |
| | MH services utilization | 2.05 (0.56) | 2.15 (0.59) | 2.29 (0.58) | 2.26 (0.57) | .119* | +WR |

Note. NR= none relationship; WR= weak relationship; MR= Moderate relationship; SR= Strong relationship; + (Positive) ; - (Negative)

Key for interpretation of the relationship between MH services and maternal age:
±0.00 to ±0.29 = none to a weak relationship; ± 0.30 to 0.59 = moderate relationship; ± 0.60 to 1.00 = strong relationship.

Results in Table 2 shows that there is a weak positive relationship between utilization of MH services and maternal age ($r = .119$). This implies that utilization of MH services among CBMs increases with increase in maternal age. Furthermore, there is weak positive relationship between utilization of preconception services ($r = .124$), antenatal services ($r = .022$), delivery services ($r = .090$), postnatal services ($r = .112$), and maternal age.

Table 3

Correlation between utilization of MH services and parity (n=1843)

| S/ | Items | None | One birth | 2-4 birth | 5 and above | r | Dec |
|----|--|--------------------|--------------------|--------------------|--------------------|--------------|------------|
| N | | n=90 | n=150 | n=902 | n=701 | | |
| | | \bar{x} (SD) | \bar{x} (SD) | \bar{x} (SD) | \bar{x} (SD) | | |
| 1. | Health assessment service before pregnancy | 3.13 (0.64) | 2.64 (0.73) | 3.00 (0.79) | 2.77 (0.65) | -.056 | -WR |
| 2. | Screening and treatment services against infectious diseases e.g. HIV/AIDS, Syphilis | 1.38 (0.74) | 1.23 (0.61) | 1.27 (0.82) | 1.09 (0.44) | -.093 | -WR |
| 3. | Immunization services against disease | 1.13 (0.35) | 1.45 (0.86) | 1.81 (1.16) | 1.43 (0.93) | -.022 | -WR |
| 4. | Counseling services prior to pregnancy | 1.25 (0.71) | 1.23 (0.69) | 1.11 (0.47) | 1.12 (0.49) | -.049 | -WR |
| 5. | Nutritional services | 1.13 (0.35) | 1.36 (0.90) | 1.47 (1.01) | 1.28 (0.78) | -.022 | -WR |
| 6. | Health promotion and management services of pre-existing condition | 1.25 (0.71) | 1.14 (0.64) | 1.22 (0.70) | 1.08 (0.43) | -.064 | -WR |
| 7. | Health education services | 1.63 (1.19) | 1.32 (0.89) | 1.22 (0.70) | 1.19 (0.71) | -.084 | -WR |
| | Cluster for preconception services | 1.55 (0.44) | 1.48 (0.43) | 1.58 (0.51) | 1.42 (0.40) | -.084 | -WR |
| | Antenatal services | | | | | | |
| 8. | Blood pressure measurement | 3.38 (1.19) | 3.45 (0.67) | 3.25 (0.90) | 3.07 (0.95) | -.115 | -WR |



| | | | | | | | |
|-----|---|--------------------|--------------------|--------------------|--------------------|--------------|------------|
| 9. | urine testing services | 3.25 (1.16) | 3.18 (0.73) | 2.80 (0.95) | 2.57 (0.98) | -.180** | -WR |
| 10. | Weight/height measurement services | 1.75 (1.16) | 3.27 (0.83) | 2.97 (0.92) | 2.85 (0.93) | .032 | -WR |
| 11. | Blood testing services | 3.13 (1.13) | 2.82 (0.96) | 2.66 (0.90) | 2.52 (0.99) | -.121* | -WR |
| 12. | Fetal growth monitoring services | 3.00 (1.07) | 2.41 (1.10) | 2.64 (0.87) | 2.47 (0.78) | -.072 | -WR |
| 13. | Tetanus services | 2.88 (1.25) | 3.27 (1.08) | 3.56 (0.82) | 3.44 (0.96) | .066 | -WR |
| 14. | Iron-folic and supplement services | 3.63 (1.07) | 3.27 (0.98) | 3.53 (0.75) | 3.25 (0.89) | -.073 | -WR |
| 15. | Malaria preventive services | 3.63 (1.06) | 3.73 (0.55) | 3.47 (0.72) | 3.28 (0.76) | -.157** | -WR |
| | Cluster for antenatal services | 3.06 (0.91) | 3.18 (0.60) | 3.11 (0.64) | 2.93 (0.67) | -.103 | -WR |
| | Delivery services | | | | | | |
| 16. | Delivery at health facility | 2.50 (1.60) | 2.95 (1.33) | 2.82 (1.10) | 2.39 (0.67) | -.122* | -WR |
| 17. | Vaginal examination | 3.13 (1.36) | 3.05 (1.17) | 3.30 (0.84) | 3.27 (0.81) | .045 | -WR |
| 18. | Obstetric examination services such as fetal heart rate, uterine services | 1.63 (1.19) | 2.14 (0.83) | 2.26 (0.88) | 2.09 (0.93) | .018 | -WR |
| 19. | Pelvic examination services | 1.00 (0.00) | 2.64 (1.26) | 1.95 (1.06) | 1.85 (1.05) | -.036 | -WR |
| 20. | Appropriate hygiene services during delivery | 2.50 (1.07) | 2.91 (0.87) | 3.05 (0.78) | 2.84 (0.84) | -.004 | -WR |
| 21. | Abdominal examination services | 1.88 (1.25) | 3.36 (0.90) | 3.47 (0.84) | 3.40 (0.75) | .157** | -WR |
| 22. | Placenta delivery services | 4.50 (2.83) | 3.86 (0.64) | 3.90 (0.52) | 3.87 (0.60) | -.088 | -WR |
| | Cluster for delivery services | 2.45 (0.66) | 2.99 (0.60) | 2.97 (0.53) | 2.82 (0.54) | -.014 | -WR |
| | Postnatal services | | | | | | |
| 23. | Assessment of bleeding and anemia | 1.00 (0.00) | 1.73 (1.24) | 1.58 (1.08) | 1.21 (0.66) | -.095 | -WR |
| 24. | Nutrition services | 1.00 (0.00) | 1.64 (1.05) | 1.22 (0.64) | 1.13 (0.55) | -.100 | -WR |
| 25. | Family planning services | 1.00 (0.00) | 1.59 (1.05) | 1.75 (1.13) | 1.41 (0.97) | -.026 | -WR |
| 26. | Vaccination services | 1.25 (0.71) | 3.23 (1.11) | 3.22 (0.97) | 3.09 (1.15) | .128* | -WR |
| 27. | Health education on breastfeeding | 1.13 (0.35) | 2.77 (0.97) | 2.72 (1.07) | 2.49 (1.07) | .056 | -WR |
| 28. | Vital sign and general condition assessment | 1.00 (0.00) | 1.86 (1.13) | 1.59 (0.86) | 1.45 (0.74) | -.036 | -WR |
| | Cluster on postnatal services | 1.06 (0.18) | 2.14 (0.75) | 2.01 (0.65) | 1.80 (0.59) | -.006 | -WR |
| | MH services utilization | 1.56 (0.42) | 2.38 (0.64) | 2.28 (0.58) | 2.10 (0.53) | -.021 | -WR |

Result in table 3 shows that there is weak negative relationship between utilization of MH services and parity ($r = -.021$). This implies that utilization of MH services decreases with increase in the number of children birthed by CBMs. Specifically, there is a negative weak relationship between utilization of preconception services ($r = -.084$), antenatal services ($r = -.103$), delivery services ($r = -.014$), postnatal services ($r = -.006$), and parity.



Table 4
Summary of Pearson Product Moment Correlation showing relationship between utilization of MH services and maternal age (n=1843)

| | | Age | Preconception services | Antenatal services | Delivery services | Postnatal services | MHS_Utiliz services |
|----------------------|-------------|--------|------------------------|--------------------|-------------------|--------------------|---------------------|
| Age | Pearson (r) | 1 | | | | | |
| | P value | | | | | | |
| PreConception | Pearson (r) | 0.124* | 1 | | | | |
| | P value | 0.040 | | | | | |
| Antenatal | Pearson (r) | 0.022 | 0.434* | 1 | | | |
| | P value | 0.719 | 0.000 | | | | |
| Delivery | Pearson (r) | 0.090 | 0.427* | 0.530* | 1 | | |
| | P value | 0.134 | 0.000 | 0.000 | | | |
| Postnatal | Pearson (r) | 0.112 | 0.558* | 0.539* | 0.601* | 1 | |
| | P value | 0.062 | 0.000 | 0.000 | 0.000 | | |
| MHS_Utiliz | Pearson (r) | 0.119* | 0.551* | 0.513* | 0.633* | 0.985* | 1 |
| | P value | 0.048 | 0.000 | 0.000 | 0.000 | 0.000 | |

*. Correlation is significant at the 0.05 level (2-tailed)

Table 4 shows that there is a significant relationship between utilization of MH services and maternal age ($r = .119, p = .048 < .050$). The table further shows that there is a significant relationship between utilization of preconception services and maternal age ($r = .124, p = .040 < .050$). The null hypothesis is therefore rejected. This implies that utilization of MH services differ based on maternal age range.

Table 5
Summary of Pearson product moment correlation showing relationship between utilization of MH services and parity (n=1843)

| | | Parity | Preconception services | Antenatal services | Delivery services | Postnatal services | MHS_Utiliz services |
|----------------------|-------------|--------|------------------------|--------------------|-------------------|--------------------|---------------------|
| Parity | Pearson (r) | 1 | | | | | |
| | P value | | | | | | |
| Preconception | Pearson (r) | -.084 | 1 | | | | |
| | P value | .164 | | | | | |
| Antenatal | Pearson (r) | -.103 | .434* | 1 | | | |
| | P value | .089 | .000 | | | | |
| Delivery | Pearson (r) | -.014 | .427* | .530* | 1 | | |
| | P value | .813 | .000 | .000 | | | |
| Postnatal | Pearson (r) | -.006 | .558* | .539* | .601* | 1 | |
| | P value | .927 | .000 | .000 | .000 | | |
| MHS_Utiliz | Pearson (r) | -.021 | .551* | .513* | .633* | .985* | 1 |
| | P value | .726 | .000 | .000 | .000 | .000 | |



*. Correlation is significant at the 0.05 level (2-tailed).

Table 5 shows that there is no significant relationship between utilization of MH services and parity ($r = -.021, p = .726 > .050$). The result in the table further shows that there is no significant relationship between utilization of preconception, antenatal, delivery and postnatal services, and parity ($r = .084, p = .164 > .050$; $r = -.103, p = .089 > .050$; $r = -.014, p = .813 > .050$; $r = -.006, p = .927 > .050$) respectively.

Discussion

Findings in Table 1 showed low utilization of MH services among CBMs in Enugu rural communities. The finding was surprising and not expected. The researcher expected that utilization of MH services should be moderate or high because utilization of MH services helps in reducing mortality and morbidity rate of mothers. According to Shudura et al. (2020), the huge number of maternal death, specifically in low-and middle income countries Nigeria inclusive, is because of low MH service utilization. The findings agree with that of Stewart and Hall (2022), who reported that utilization of MH services in the Mchinji District was low. However, the finding did not agree with those of Okpala et al. (2019) who reported high utilization of MH services in Enugu, south East Nigeria. The reason for such discrepancy could be attributed to difference in the location of the study, therefore factors, such as level of education, awareness programme, and availability of health facility could be the reason for the discrepancy owing to the fact that the present study was carried out in the rural part of the state and these factors are low. Also Enugu state is made up of both urban and rural area and the reason for high utilization of MH service based on the authors finding could be that the study was carried out among CBMs who are more enlightened based on education and awareness of the importance of MH services. Therefore, there is need to conduct research to establish the reason why there is high utilization of MH services in some parts of Enugu and low utilization in other parts. This finding implies that there is need for advocacy and awareness on the importance of utilization of MH services among CBMs in order to increase the status of utilization of MH services.

Findings in Table 2 showed that there is weak positive relationship between utilization of MH services and maternal age. This implies that as the age of the mother increases, utilization of MH services among the CBMs also increases. The finding is expected and not surprising. This is because According to Nxiweni et al. (2022), the older the woman (35 years and older), the more likely she will use antenatal care services appropriately. The reason could be that advanced maternal age (35 years and above) predisposes mothers to varieties of health challenges associated with pregnancy and childbirth and as such could influence positive utilization of MH services in order to prevent and/ or manage existing health conditions. However, the findings disagree with that of Paul and Chouhan (2020), who reported that older women were less likely to utilize MH care services than the younger women. Also, the finding disagrees with Shitie and Azene (2021), whose report shows that younger women were more likely to utilize antenatal care services more than older women. The reason for the contradictory findings could be attributed to parity. This is because studies have shown that women with more than two living children tend to believe that they have knowledge on maternal health and hence rarely utilizes MH



services available. Therefore, parity could be the reason why older women according to authors utilize MH services less than younger women. There is need for further research to ascertain relationship between maternal age and parity with regards to utilization of MH services

Furthermore, the findings in table 4 showed that there is a significant relationship between utilization of MH services and maternal age. The finding was expected and not surprising. This is because maternal age to an extent determines the outcome of pregnancy where being too young or advanced has implication to the health of the mother and that of the child. The finding is consistent with that of Chamileke (2017), who stated that advanced maternal age (35 -44 years) was associated with the increased use of postnatal services. The finding agrees with that of Nuamah et al. (2019), who stated that antenatal and postnatal utilization has significant relationship with maternal age. These findings therefore indicates that maternal age influences the utilization of MH services. These findings, thus, implies that maternal age influences utilization of MH services.

Finding in Table 3 showed that there is a weak negative relationship between utilization of MH services and parity. This implies that parity influences utilization of MH services, in that there is decreased utilization of MH services with increased parity. The finding is not expected but not surprising because women who have more than three living children tend to believe that they are more experienced to handle their maternal and reproductive health issues as such they utilize MH services less frequently compared to those mother with less children (Tsawe et al., 2015). This finding does not agree with Machira and Palamuleni (2017) who reported that women with birth order of 1 - 4 had a positive association with public health care delivery. Also, the finding is consistent with Pervin et al. (2021), who reported that nulliparous and primiparous women were 1.3 times more likely to utilize MH services than women with two or more birth. The finding is consistent with He et al. (2022) who reported that with increase parity there was decreased utilization of MH services.

The finding in Table 5 further showed that there is no significant relationship between utilization of MH services and parity. The finding disagrees with that Tsawe et al., (2015) which reported that there is a significant relationship between parity and utilization of MH services where use of institutional deliveries decreases with parity. The finding disagrees with Deepak et al. (2018) which asserted that there were significant association between utilization of MH services and parity. Findings of He et al. (2022) stated that maternal parity was associated with utilization of MH services and therefore does not agree with the findings. The reason for such discrepancy in finding could be that CBMs in Enugu rural communities generally rarely utilizes MH services regardless of number of children they have had. These findings implies that parity has little or no influence in the utilization of MH services.

Conclusion

The study findings have shown that utilization of MH services among CBMs is low. Maternal age have been identified to influence the utilization of MH services among CBMs in selected Enugu rural communities. Also a significant relationship exist between utilization



of MH services and maternal age, whereas there is no significant relationship between MH services utilization and parity.

Recommendations

Based on the findings, discussion and conclusion, the following recommendation are made:

1. Awareness programme should be created to enlighten CBMs on the danger of not utilizing MH services required of them and noting that having more than three living children does not make them expert in handling their maternal and reproductive health issue.
2. Free MH services should be made available at every health facility in rural communities to foster increased utilization of the services.
3. Mothers of all age (younger and older mothers) should be made to understand that pregnancy come with it challenges and if not properly taken care of can result in complication/death and as such both younger and older women should adequately utilize MH services as recommended.

References

- Adams, Y. J., (2021). *Global maternal mortality. The dignity of life and the tragedy of death.* <https://keough.nd.edu/global-maternal-mortality-the-dignity-of-life-and-the-tragedy-of-death-dd/>
- Akowuah, J.A., Agyei-Baffour, P., & Awunyo-Vitor, D. (2018). Determinants of antenatal healthcare utilization by pregnant women in third trimester in Peri-Urban Ghana. *Journal of Tropical Medicine*, 8. <https://dio.org/10.1155/2018/1673517>
- Amwonya, D., Kigosa, N., & Kizza, J. (2022). Female education and maternal health care utilization: evidence from uganda. *Reproductive Health Journal*, 142 (19). <https://doi.org/10.1186/s12978-022-01432-8>
- Avachat, C., & Bimbaum, A.K. (2022). Women of childbearing age: What antiseizure medications are they taking? *British Journal of Clinical Pharmacol*, 89 (1), 46-48. <https://doi.org/10.1111/bcp.15555>
- Chamileke, N. (2017). Socio demographic determinants of maternal health service utilization among women 15 to 49 years zambezi district in northwestern zambia. *Medical Journal of Zambia*, 44(3). <https://www.ajol.info/index.php/mjz/article/view/168179>
- Deepak, C., Jauhari, N., & Dhungana, H. (2018). A study on utilization of maternal health services and factors influencing the utilization in urban slums of lucknow. *International Journal of Medicine and Public Health*, 8(2), 77-81. <https://dio.org/10.5530/ijmedph.2018.2.17>
- He, O., Abdureyim, M., He, Z., Ma, X., Huang, M., Zhang, T., Oi, X., Hee, J., & Tang, K. (2022). Factors associated with age-specific maternal health-seeking behaviours among women: A multiple indicator cluster survey-based study in 10 african countries. <https://dio.org/10.7189/jogh.12.04095>



- Jacob, C., Moshabela, M., Maswenyeho, S., Lambo, N., & Michelo, C. (2017). Predictors of antenatal care, skilled birth attendance, postnatal care utilization among the remote and poorest rural communities of Zambia: A multilevel analysis. *Frontiers in Public Health*, 5 (11). <https://doi.org/10.3389/fpubh.2017.00011>
- Machira, K., & Palamuleni, M. (2017). Factors influencing women's utilization of public health care services during childbirth in Malawi public health facility utilization. *African Health Sciences Journal*, 17(2), 400-408. <https://doi.org/10.4313/ahs.vi7i2.14>
- Nuamah, G.B., Agyei-Baffour, P., Mensah, K.A., Boateng, D., Quansah, Y.D., Dobin, D., & Addai-Donkor, K. (2019). Access and utilization of maternal healthcare in a rural district in the forest belt of Ghana. *BMC Pregnancy Childbirth* 19(6). <https://doi.org/10.1186/s12884-018-2159-5>
- Nxiweni, P.Z., Oladimeji, K.E., Nanjoh, M., Banda, L., Anyiam, F.E., Hyera, F.L.M.,... Oladimeji, O. (2022) Factors influencing the utilization of antenatal services among women of childbearing age in South Africa. *Women*, 2(3) 285–303. <https://doi.org/10.3390/women2030027>
- Ojifinni, O.O., & Ibisomi, L. (2020). Preconception care practices in Nigeria: a descriptive qualitative study. *Reproductive Health Journal* 17, 172. <https://doi.org/10.1186/s12978-020-01030-6>
- Okpala, P. U., Okoye, C. L., Adeyemo, F. O., Iheanacho, P. N., Emesonwu, A. C., Osuala, E. O., & Okpala, I. G. (2019). Utilization of maternal and child health services in Enugu, south east, Nigeria. *International Journal of Community Medicine and Public Health*, 6(8), 3228–3233. <https://doi.org/10.18203/2394-6040.ijcmph20193124>
- Olonade, O., Olawande, T.I., Alabi, O.J., & Imhonopi, D. (2019). Maternal mortality and maternal health care in Nigeria: implications for socio-economic development. *Open Access Macedonian Journal of Medical Science*, 7(5), 849-855. <https://doi.org/10.3889/oamjms.2019.041>
- Onunze, R. A., & Philip, D. (2022). Adequacy of integrated maternal newborn and child health (IMNCH) programme in Enugu state, Nigeria. *International Journal of Human Kinetics, Health and Education*, 6(1). <https://journals.aphriapub.com/index.php/IJoHKHE/article/view/1451>
- Onunze, R.A., Ugbele, J.E., & Philip, D. (2021). Provision of integrated maternal, newborn, and child health (IMNCH) services and its challenges in Enugu state, Nigeria. *International Journal of Human Kinetics, Health and Education*, 6(2). <https://journals.aphriapub.com/index.php/IJoHKHE/article/download/1480/1404/2916>
- Paul, P., & Chouhan, P. (2020). Socio-demographic factors influencing utilization of maternal health care services in India. <https://doi.org/10.1016/j.cegh.2019.12.023>
- Pervin, J., Venkateswaran, M., Nu, U.T., Rahman, M., O'Donnell, B.F., Friberg, I.K., Rahman, A., & Froen, F. (2021) Determinants of utilization of antenatal and delivery care at the



- community level in rural Bangladesh. *PLoS ONE* 16(9), e0257782. <https://doi.org/10.1371/journal.pone.0257782>
- Shitie, A., & Azene, Z.N. (2021). Factors affecting the initiation and continuation of maternal health service utilization among women who delivered in the past one year in Enemay district, East Gojjam, Ethiopia. *Archives of Public Health*, 79, 171. <https://doi.org/10.1186/s13690-021-00689-y>
- Shudura, E., Yoseph, A., & Tamiso, A. (2020). Utilization and predictors of maternal health care services among women of reproductive age in hawassa university health and demographic surveillance system site, south Ethiopia: A cross-sectional study. *Advances in Public Health Journal*, (1), 1-10. <https://doi.org/10.1155/2020/5865928>
- Stewart, C.L., & Hall, J.A. (2022) Factors that affect the utilization of maternal healthcare in the mchinji district of Malawi. *PLoS ONE* 17(12). <https://doi.org/10.1371/journal.pone.0279613>
- Tidy, C. (2019). Gravidity and parity definition: implication in risk assessment. <https://patient.info/doctor/gravidity-and-parity-definitions-and-their-implications-in-risk-assessment>
- Tsawe, M., Moto, A., Netshivhera, T., Ralesego, L., Nyathi, C., & Susman, S.A.(2015). Factors influencing the use of maternal healthcare services and childhood immunization in Swaziland. *International Journal for Equity in Health*, 14, 32 . <https://doi.org/10.1186/s12939-015-0162-2>
- United Nation International Children Emergency Fund. (2022). *Antenatal care*. Author. <https://data.unicef.org/topic/maternal-health/antenatal-care/>
- United Nations Inter-agency Group for Child Mortality Estimation. (2018) . *Levels and trends in child mortality 2018 report: estimates developed by the UN Inter-agency group for child mortality estimation*. Author
- World Health Organization. (2022). *Newborn Mortality*. <https://www.who.int/data/gho/data/themes/topics/topic-details/GHO/child-mortality-and-causes-of-death>
- World Health Organization. (2023). *Maternal mortality*. Geneva, Switzerland: Author. <https://www.who.int/news-room/fact-sheets/detail/maternal-mortality>
- Wudineh, K.G., Nigusie, A.A., Gesese, S.S., Tesu, A.A., & Beyene, F. Y. (2018). Postnatal care service utilization and associated factors among women who gave birth in debretabour town, Nortg west Ethiopia: a community-based cross-sectional study. *BMC Journal of Pregnancy Childbirth*, 18, 508. <https://doi.org/10.1186/s12884-018-2138-x>