THE PREVALENCE AND PREDICTORS OF ABDOMINAL MASSAGE AMONG PREGNANT WOMEN ATTENDING ANTENATAL CARE AT THE NIGER DELTA UNIVERSITY TEACHING HOSPITAL, OKOLOBIRI, NIGERIA.

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ABSTRACT

Background: Abdominal massage (AM) is an age-long cultural practice among pregnant women in the Niger Delta region of Nigeria. It is a major contributor to maternal morbidity and mortality. This study investigates its current prevalence and determinants among pregnant women attending Antenatal clinic (ANC) in the Niger Delta University Teaching Hospital, Okolobiri, Nigeria.

Methods: Using a self-administered, structured questionnaire, data was collected from 319 pregnant women randomly selected from women attending ANC in the hospital. The prevalence of AM was defined by proportion of women who ever had AM in pregnancy. The predictors of the occurrence of AM were identified using binary logistic regression.

Results: Majority of respondents were urban settlers (70.5%), multiparous (60.2%), self-employed women (41.7%);secondary education was the highest level of learning among respondents (48.6%). The prevalence of AM was 70.5%. Pain in past labors was the most common reason for seeking AM (42.3%) and also the most frequent complication in labor (50.0%) following AM. The predictors of AM identified include husband support (OR – 4.91; 95% CI: 2.93 – 25.89; p – 0.006), when source of information is parents(OR – 6.92; 95% CI: 3.46 – 135.85; p< 0.001) and relatives (OR – 17.05; 95% CI: 2.17 – 134.2; p – 0.007). Ethnicity and secondary level of education were also identified as predictors of AM.

Conclusion: AM has a high prevalence among antenatal patients and may not be eradicated so soon. The experience of pain in past labors and consequently the most common complication in labor were some of the attractions to seek abdominal massage. Modern management of labor with adequate analgesia and empowering the woman to be independent of the husband support will allow her to take good reproductive health decisions.

Key Words: Abdominal massage, Traditional Birth Attendants, Niger Delta, Skilled providers, Maternal morbidity and mortality.

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INTRODUCTION

Abdominal massage is an age long culture imbibed from generation past whereby antenatal mothers subject themselves to an extra unorthodox care in the hands of traditional birth attendants, besides attending conventional antenatal care which have been proven to save lives.[1,2] Antenatal care in sub-Saharan Africa is a mix of orthodox and unorthodox antenatal care practices, with pregnant women attending one or both forms of care. The unorthodox care includes care given to the pregnant woman in churches and traditional birth attendants (TBA) homes.[2,3]

Abdominal massage in pregnancy diverts the pregnant woman's attention from quality antenatal care to those offered by TBAs.[4] Unorthodox antenatal attendees often present to conventional centers as unhooked, self-referred and mismanaged in labour[5].They come to hospital when it is clear to them and their care-givers that vaginal delivery is no longer feasible.[5] There are no practice guidelines for TBAs, neither is their practice considered interventionist or best practice. In this scenario, the activities of the TBA contributes to the high maternal morbidity and mortality.[5]

The traditional birth attendants are usually elderly women who live in close proximity with the obstetric population in both rural and urban communities in the Niger delta region.[6] They participate in health care delivery, especially antenatal care and delivery of women in labour.[6] They did not have any formal education or conventional health education. The pregnant women they treat and themselves act in complete ignorance of the understanding of pregnancy.[2,4] The TBAs are presumed to know the treatment of all ailments in both pregnant and non-pregnant women and perform various obstetric maneuvers including external cephalic version (ECV).[7] They practice in very dirty and crude environments that are not suitable for childbirth. They perform frequent vaginal examinations while managing labor, some with bare hands thereby promoting infections[8].In most cultures and nations where TBAs have been trained and retrained, maternal morbidity and mortality have not been known to improve[9].The current opinion is to discourage TBAs in participating in child birth.[9]

The complication of abdominal massage could be life threatening like damage to abdominal viscous, such as the liver, splenic rupture, placenta abruption, and intrauterine fetal and maternal death. These arrays of trauma and massive hemorrhage from damaged organs are preventable causes of maternal morbidity and mortality. Other complications include obstructed labor and infection.[6] The complications of abdominal massage often require massive blood transfusions, in an area where blood is not readily available for patients in emergencies. Most of these complications arise because of the vigorous manipulation of the pregnant abdomen.[7]

Maternal mortality is high in Nigeria and in sub-Saharan Africa in general, because of strong adherence to negative cultural beliefs that communities' at large impact on

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pregnant mothers especially at the point of delivery, even when they had antenatal care in good centres.[9-11]

The health seeking behavior in this region is in abeyance, where 60% of mothers would have antenatal care and only 36 % of them had hospital delivery.[12] While conceptualizing this study we bore in mind the huge maternal mortality in Africa especially those resulting from deliveries by unskilled persons like TBAs, what factors influences the choice of mothers to deliver outside the hospital. This will make health planners to design interventions that will halt this obnoxious practice and reduce maternal mortality.

METHODOLOGY
Study Area
This study was carried out at the Obstetrics and Gynaecology Department of the Niger Delta University Teaching Hospital. It is a tertiary heath institution that serves the health needs of the people of Bayelsa state where it is situated, and the neighboring states of Rivers, Delta, Imo and Abia States. It is also involved in both undergraduate and post-graduate training of Doctors besides taking part in research.

Study Design
The study was conceptualized as a facility-based and cross-sectional study conducted from February 2018 to October 2018.

Study Population
The study population is the pregnant women attending antenatal care (ANC) in the obstetric unit of the Niger Delta University Teaching Hospital. All pregnant women who are attending ANC in the study facility who agrees to participate in the study voluntarily were included in the study and pregnant women who had severe medical and mental illness, who could not communicate verbally during data collection, were excluded.

Sample size determination
The sample size for the study was calculated using the formula for estimating prevalence in a population shown below:

$$n = \frac{Z^2 PQ}{D^2}$$

where n = sample size, Z is the normal standard deviate at 95%CI, which in a two-tailed test, is equal to 1.96; P is the prevalence of AM in an earlier study which reported 78% in Yenagoa. Q is given by 1 – P (1 – 0.78) and D is the level of precision which is set at 3% for this study. Substitution of this formula yielded a sample size of 264 participants initially, with a 20% adjustment for non-response the sample population increased to 316 participants.

Sampling Technique
By simple random sampling (balloting) participants were recruited for this study. Participants attending ANC were made to pick a piece of paper in an envelope with multiple of such pieces, each of them marked Yes' and 'No' as they arrive for ANC during the period of the study. The participants who picked 'Yes' were recruited into the study at every ANC day until the calculated sample size was achieved. The antenatal folders of those who had been recruited for the study are marked 'used'. Participants were only

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allowed to participate once in the study.

Study Instrument

The study instrument was designed in relation to similar tools used in comparable studies which addressed the objectives of this study. The questionnaire was prepared in simple English to facilitate the understanding. The questionnaire explored sociodemographic information of participants, reproductive health factors and the factors that impact on the occurrence of AM.

Study Procedure

Data was collected using a self-administered, structured questionnaire developed locally by the researchers. Minimal assistant was given by research assistants to participants who may find some part of the questionnaire difficult to understand. Research assistants were selected from Residents undergoing postgraduate medical education in the institution and trained on the objectives and method for the study.

Data Analysis

The collected data was entered and analyzed using SPSS version 22. Frequencies and proportions were obtained for categorical variables and mean/standard deviation calculated for continuous variables. Women that have undertaken AM were coded as '1', and those who had never experienced AM were coded as '0'. This dichotomized variable was used as the dependent variable and tested against explanatory variables like age, religion, ethnicity, level of knowledge, source of information about AM in the logistic regression analysis to identify predictors of AM in this locality. Statistical significance was determined by p-Value less than 0.05.

Ethical Consideration

Consent was obtained from participants before they were recruited into the study. Approval was obtained from the ethical committee of the Hospital.

RESULTS

Socio-demographic characteristics of Participants

As presented in Table 1, the study found that most respondents were urban settlers (70.5%), multiparous (60.2%) and self-employed women (41.7%). Secondary education was the highest level of learning in 155 women (48.6%). Table 1 also showed that majority were of the Ijaw ethnic group. (54.9%) and Christians (97.5%).

Mean age of participants was 28.9 years with ± 5.7 years standard deviation, median parity is 1 (range:0 – 7), median number of AM in pregnancy is 2 sessions with a range of 1 to 20. The average cost for a session of AM is two hundred naira (Table 2).

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Table 1. **Sociodemographic characteristics of study participants**

Characteristics	Frequency (N = 319)	Percent (%)
Age group of study participant		
< 25 years	85	26.6
. . _	124	38.9
31 – 35 years	66	20.7
>35 years	44	13.8
Settlement		
Rural Settlement	94	29.5
Urban Settlement	225	70.5
Employment Status		
Unemployed	114	35.7
Civil servants	72	22.6
Self employed	133	41.7
Religion		
Christianity	311	97.5
Islam	8	2.5
Ethnicity		
Ijaw	175	54.9
Igbo	74	23.2
Yoruba	11	3.4
Hausa	4	1.3
Others	55	17.2
Parity		
Nulliparous	98	30.7
Multiparous	192	60.2
Grandmultiparous	29	9.1
Highest level of Education		
Primary	50	15.7
Secondary	155	48.6
Tertiary	114	35.7

Table 2: Background Characteristics of Study Participants and Cost of Abdominal massage

Characteristics	Distribution
Socio-demographic	
Age of Participants (in years)– mean (SD)	28.9 (5.7)
Parity – Median (range)	1 (0 – 7)
Number of abdominal massage - Median (range)	2 (1 – 20)
Gestational Age when abdominal massage was initiated (in weeks) – Median (SD)	16 (4 – 36)
Socio-economic	
Cost of Abdominal massage per session (in Naira)– median (Range)	200 (0 – 4,500)

Prevalence of Abdominal Massage

Prevalence of AM is as high as 70.5% and more than half (54.5%) of participants have had AM in the index pregnancy as at the time they were recruited in the study. However, only about one in ten have experienced any form of complication (Table 3). Maternal body pain is the main reason, majority of participants go for AM in pregnancy. Table 3 further shows that associated complications in AM include Pain (5.0%), bleeding (3.4%)

and fetal loss (0.6%). Abdominal massage is performed mostly by TBAs (56.7%).

Table 3: Occurrence of, reasons for and complication of abdominal massage among Participants

Characteristics	Frequency (N = 319)	Percent (%)
Participants who have heard about abdominal massage	299	93.7
Participants who have ever undertaken an abdominal massage	225	70.5
Participants who have had abdominal massage in any pregnancy	203	63.6
Participants who hav e had abdominal massage in this current pregnancy	174	54.5
Participants who had complications following abdominal massage in current pregnancy	32	10.0
Participants who had complications following abdominal massage in past pregnancy	29	9.1
Reasons for abdominal Massage		
Routine check and fetal wellbeing	42	13.2
Pain	135	42.3
Fetal wellbeing and sex determination	33	10.3
Complication following Abdominal massage N= 29		
Pain	16	55.2
Bleeding	11	37.9
Fetal loss	2	6.9
Who performs the massage? (N=210)		
Traditional birth attendant	181	56.7
Native doctor	20	6.3
Nurse/Midwife	9	2.8

Predictors of the occurrence of AM among study participants

The first step of the logistic regression (bivariate regression), the Ijaw ethnic nationality, religion, parity, highest level of education, husband support and source of information about AM from parents, relatives and nurses show statistically significant odds in the occurrence of AM (Table 4).

Table 5 show the independent predictors of the occurrence of AM, identified by multivariate logistic regression model, husband support (OR – 4.91;95%CI: 2.93 – 25.89;p – 0.006), when source of information is parents (OR – 6.92;95% CI: 3.46 – 135.85;p < 0.001) and relatives (OR – 17.05; 95% CI: 2.17 – 134.2;p – 0.007). Ethnicity and highest

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level of education were also identified as predictors of AM (Table 5).

Table 4: Results of binary logistic regression singly identifying predictive factors of AM

Independent variable – (Reference Group)	Bivariate Analysis		
	B	OR (95% CI)	p-Value
Age of Participants – (> 35 years)			
< 25 years	0.05	1.053 (0.44 – 2.52)	0.908
26 – 30 years	- 0.59	0.551 (0.25 – 1.22)	0.143
31 – 35 years	- 0.43	0.649 (0.27 – 1.56)	0.334
Respondents' Locality (Rural)			
Urban	-0.20	0.82 (0.49 – 1.41)	0.468
Occupation of Respondents (Civil Servants)			
Unemployed	0.59	1.78 (0.95 – 3.35)	0.073
Self employed	0.54	1.72 (0.93 – 3.15)	0.083
Ethnicity (Others)			
Ijaw	1.66	5.24 (2.65 – 10.39)	< 0.001*
Igbo	-0.07	0.93 (0.46 – 1.87)	0.839
Yoruba	-1.16	0.31 (0.08 – 1.31)	0.313
Hausa	-0.18	0.83 (0.11 – 6.35)	0.860
Religion (Islam)			
Christianity	2.89	18.02 (2.19 – 148.64)	0.007*
Parity (Nulliparous woman)			
Multiparous	0.51	1.66 (0.99 – 2.78)	0.053
Grand multiparous	1.70	5.49 (1.55 – 19.39)	0.008*
Highest educational attainment (Tertiary)			
Primary	0.88	2.39 (1.11 – 5.16)	0.025*
Secondary	0.77	2.16 (1.28 – 3.65)	0.004*
Husband Support (No)			
Yes	4.61	100.2 (23.26 – 431.2)	< 0.001*
Source of Information:Parents (No)			
Yes	2.25	9.48 (5.18 – 17.34)	< 0.001*
Source of Information Peers (No)			
Yes	-0.41	0.66 (0.41 – 1.08)	0.098
Source of Information Relatives (No)			
Yes	2.87	17.71 (2.39 – 131.2)	0.005*
Source of Information Nurses/Midwives (No)			
Yes	-1.19	0.30 (0.11 – 0.84)	0.022*

Table 5: Predictors/Determinants of the occurrence of AM among participants.

Independent variable – (Reference Group)	Multivariate Analysis		
	B	OR (95% CI)	p-Value
Ethnicity (Others)			
Ijaw	0.91	2.49 (1.08 – 5.73)	0.032*
Igbo	-0.02	0.98 (0.43 – 2.26)	0.966
Yoruba	-0.20	0.82 (0.16 – 4.13)	0.807
Hausa	-0.14	0.87 (0.16 – 4.78)	0.875
Religion (Islam)			
Christianity	2.17	1.27 (0.14 – 9.83)	0.207
Parity (Nulliparous woman)			
Multiparous	0.13	1.14 (0.59 – 2.21)	0.704
Grand multiparous	0.84	2.32 (0.54 – 10.02)	0.260
Highest educational attainment (Tertiary)			
Primary	1.23	3.41 (1.22 – 9.55)	0.019*
Secondary	1.16	3.20 (1.66 – 6.16)	< 0.001*
Husband Support (No)a			
Yes	1.59	4.91 (2.93 – 25.89)	0.006*
Source of Information Parents (No)			
Yes	1.93	6.92 (3.46 – 13.85)	<0.001*
Source of Information Relatives (No)			
Yes	2.84	17.05 (2.17 – 134.02)	0.007*
Source of Information Nurses/Midwives (No)			
Yes	-0.42	0.65 (0.16 – 2.70)	0.558

DISCUSSION

From this study, the prevalence of AM is 70.5% implying that seven out of every ten women attending antenatal care at the Niger Delta University Teaching Hospital (NDUTH) Okolobiri have had abdominal massage in their obstetric career. This means that abdominal massage is still a common practice in this locality despite its associated complications. This result is similar to finding from the study done in the same hospital (NDUTH) four years ago among antenatal attendees where 78 in 100 women were reported to have had abdominal massage.[13] It is also comparable to a study in South Ethiopia on abdominal massage in pregnancy where 68 in100 had the procedure.[14] This recent result showed that in the four-year period there was less than ten percent reduction in the prevalence of abdominal massage among the inhabitants of the study area. This slow decline in the prevalence also showed that abdominal massage is not going to disappear so soon. However, in contrast to this result a study on abdominal massage done at the neighboring University of Port Harcourt Teaching Hospital reported a prevalence of 10 in 100 women who had abdominal massage in their pregnancy.[15] This difference may have been due to the nature of the study population in the two studies, while our participants used a structured questionnaire, to recall a past event of abdominal massage and may have suffered recall bias, the Port Harcourt study was a prospective study of pregnant women who were admitted and managed for obstetric emergencies.[15]

From our results and those of other centers in the sub-region, it is obvious that abdominal massage and its complication of maternal morbidity and mortality are widespread throughout the sub-Saharan region.

Unorthodox health seeking behavior such as patronizing traditional birth attendants is very common in this setting and encourages childbirth outside hospital setting different from where they registered for care as exemplified in the 2014 Nigerian Demographic Health Survey where 60% of women had antenatal care in the formal health sector and only 36% had hospital delivery.[12] World Health Organization (WHO) and Nigerian Antenatal Health Care delivery Policies, currently advises pregnant women to be delivered by skilled birth attendants. Delivery outside the formal health sector may not be unconnected to the activities of TBAs whose services are relatively cheap and close to the pregnant women as demonstrated in this study. Some pregnant women had as high as 20 abdominal massage sessions in the index pregnancy indicating how easily accessible and affordable these services are.

Experience of pain in previous pregnancies, labor and deliveries was one of the most common reasons why women result to abdominal massage. Unfortunately, pain was also the most common complication of AM reported by the respondents in this study. In Sub-Saharan Africa, we still practice natural labors with little or no analgesia. This experience of pain is lifelong and women are only consoled with a live birth at the end of pregnancy.[15,16]The desire of mothers to alleviate the pain associated with labor may be a driving force contributing to the sustenance of AM in pregnancy. Care providers' needs to meet up with modern management of pain relief in labor, to give our women a more desirable experience at the end of pregnancy.

From the regression analysis, the Ijaw woman has the highest likelihood of undertaking abdominal massage in pregnancy among all the ethnic nationality living in the study area. Though there are no written records about the practice of abdominal massage in pregnancy among the Ijaw, oral tradition claims the act has been practiced for thousands of years among people of this ethnic extraction. Also, our findings show that the practice is common in both urban and rural centers, implying it is a way of life of the people that is not affected by modernization or urbanization of the communities. Christians are eighteen times more likely to undertake abdominal massage. The relationship noticed between Christianity and abdominal massage is due to the fact that the Ijaw people are predominantly Christians; hence the abdominal massage is seen is an Ijaw phenomenon as depicted in the multivariate analysis where religion was no longer statistically significant in predicting the occurrence of AM.

However, it must be noted that religion has contributed its quota to maternal mortality and morbidity among mothers in Nigeria. Churches and Faith based organizations have reportedly conducted parallel antenatal care and delivery practices in their places of worship with its attendant complications. A similar study in Uyo reported that pregnant women attending antenatal clinic also attended spiritual based churches to seek protection against attacks and other sundry issues during pregnancy, including labor and delivery[3].These unorthodox practices reduce antenatal uptake and impacts negatively on

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antenatal outcome.

This study also reveals that when husbands support abdominal massage, a pregnant woman is likely to have it. This is because in sub Saharan Africa, women are subservient to their husbands and the later will give consent before they go for any medical treatment or procedure.

Education was identified in this study as an independent predictor of undertaken abdominal massage in pregnancy. Women with primary and secondary education had higher odds of undertaken AM than their counterparts with tertiary education. This is not surprising as women with tertiary education are expected to be more informed and aware of the dangers of cultural norms like abdominal massage. Education also empowers a woman financially, hence it easier for her to afford antenatal care in the formal health sector and also resist the cultural pressure that may want to subject her to potentially harmful practices like AM in pregnancy. Women with lower levels of education may be easily cowed into such practices even against their wishes. Giving the girl child good education is important as this will enhance her ability to judge from precedence, avoid harmful practices, easily recognize danger signs in pregnancy and present early to the formal health sector in case of emergencies in pregnancy as opined in the Ethiopian study which investigated cultural birth malpractice in Ethiopian.[13]

CONCLUSION

Abdominal massage in pregnancy is still common in this locality, culturally ingrained practice that enjoys the support of the family.

Giving the girl child good education will make a way of escape from family and husband's domineering and negative decisions regarding abdominal massage and other issues concerning reproductive health of the woman. Health care planners in the Niger Delta should reach out to communities with high prevalence of antenatal women going for abdominal massage like the Ijaw communities. Organizing recurrent seminars, highlighting the harmful effects of abdominal massage in pregnancy will be helpful in reducing the maternal morbidity and mortality prevalent in the sub–Saharan African region.

Our limitation to this study was that there was scarcity of similar works done in the Niger Delta to compare with our findings. There was no conflict of interest from the authors in the preparation of this manuscript.

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