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Table of Content: Volume 10 Number 9 September 2018

ARTICLES

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Full Length Research Paper

Evaluation of the quality of postnatal care and mothers' satisfaction at the university college hospital Ibadan, Nigeria

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Globally, postpartum care is a neglected part of maternal health, even though 50% of maternal deaths occur in the first weeks after childbirth. Literature is sparse on the quality and content of postnatal care provided in Nigeria. This study aimed to assess the quality of Postnatal Care (PNC) for mothers using the World Health Organization (WHO) practice guideline of postnatal care. An exploratory cross-sectional design was employed among 57 purposively selected mothers in postnatal clinic and wards. Data were collected in two phases using three checklists to examine facility resources and quality of postnatal care provided; and one questionnaire to evaluate mothers' satisfaction in both the clinic and the wards. Data were analyzed using descriptive statistics. The facility assessment showed an inadequate infrastructure and human resources. Only 47.9% of the recommended routine postnatal care was provided on the postnatal wards and 42.3% in the postnatal clinic. Level of satisfaction was found to be poor among 63.2% of the women on the wards, and good among 82.5% of the women in the clinic. Findings suggest that inadequate resources for PNC. Organizations need to strengthen PNC services by providing recommended resources and a standard guideline that will serve as a framework for provision of quality postnatal care services.

Key words: Postnatal care, postnatal care guideline, quality care, maternal satisfaction.

INTRODUCTION

The postnatal period is the first six weeks after birth, which is critical to the health and survival of the mother and her newborn. The most vulnerable time for both is during the hours and days after birth (WHO, 2014). Despite this long-standing definition, the postpartum period frequently lasts for several months and it is documented as a neglected aspect of modern maternity care. Accordingly, Pallangyo et al. (2017), reported that the global picture confirms that postpartum care is a neglected part of maternal and neonatal health, yet 50% of maternal deaths occur in the first weeks after childbirth. It is therefore not surprising that literature is sparse on the puerperium and where it exists; it deals primarily with abnormal involution and pathology (Kearns et al., 2016). The WHO has highlighted widespread and persistent health problems, including death experienced

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by women after childbirth, many of which are unreported by women and not identified by healthcare professionals (WHO, 2014). Furthermore, WHO (2014) reports that of the 289,000 maternal deaths that occur each year, worldwide and 50 to 71% occur within the postnatal period. Unfortunately, 99% of these maternal deaths occur in low and middle income countries including Nigeria (Blencowe et al., 2012).

Despite the more than 20 years fight against maternal deaths, Nigeria still documents one of the worst maternal mortality statistics in the world. With a maternal mortality ratio of 576 per 100,000 live births, Nigeria is second only to India in the global estimates of maternal mortality.

Consequently, Nigeria loses about 153 women of childbearing age every day and a woman's chance of dying from pregnancy and childbirth in Nigeria is 1 in 13 (NDHS, 2013). Specifically, over 40,000 maternal deaths occur in Nigeria yearly (APHRC, 2017). Reports from other low income countries such as Uganda also suggest poor Postnatal Care (PNC) services. There is no document to suggest an adapted standard for PNC services in Nigeria. However, effort is geared towards achieving the recommended standard specified by the WHO.

Khanal et al. (2014), reported that the postnatal care indicated that standards were infrequently met as only 2 in 5 women in their study were reported to have received a postnatal check-up within one hour of delivery. In another study in Pakistan, Munawar et al. (2017) revealed verbalization of the low quality of maternity care by most of the participants.

In Nigeria an extensive review of the literature suggests a dearth of researches on the content and quality of postnatal care, even though care is routinely provided for women. However, several important indicators such as mortality indices reported from recent studies raise concern about its quality and effectiveness, consequently the question of quality and coverage.

Accordingly, Kinney et al. (2010) reiterates that the burden of maternal death can effectively be reduced when efforts are geared towards overcoming both the coverage and quality gaps in postnatal care. This is also consistent with other reports. For example, Carvajal-Aguirre et al. (2017) in an audit review of the content of ANC and PNC services concluded that the gap between coverage and content as a measure of quality of care is tremendously wide in all countries.

Therefore, in order to accelerate maternal and newborn survival, the authors suggested an urgent need for increased efforts targeted at improving both the coverage and actual contents of maternal and newborn health interventions.

In response to the morbidity and mortality indices, the WHO in 2014 established guidelines of postnatal care, to promote quality and ensure effectiveness. Again in 2016 the organization indorsed the availability and the use of all recommended resources to achieve optimal health care outcomes and improve the use and satisfaction of individuals, families and communities with maternal health services.

Implicitly, a first step towards achieving the goals for maternal health in the Sustainable Development Goals (SDGs 3): ensuring healthy lives and promoting the well-being of all at all ages. For women this would mean to routinely monitor quality along the continuum of care in terms of structure, process and outcome, within the context of Donabedian model of quality care. The aim of this study was to assess the available resources (Structure) used in the provision of postnatal care in the facility, evaluate routine postnatal practices on the postnatal wards and clinic in accordance with WHO guidelines (Process), and to examine women's level of satisfaction (Outcome) with the care they received in the study setting. The Donabedian model of quality care was used as the framework to evaluate the extent of implementation of WHO guideline for quality postnatal care. The three dimensions of quality care identified in the model namely; structure, process and outcome dimensions served as the basis for assessment in this study.

MATERIALS AND METHODS

This study was an exploratory cross-sectional survey. It employed a mixed method of data collection, which consists an initial phase of qualitative data collection followed by a second phase of quantitative data collection. The observation was the dominant method and it was employed in order to examine the actual care being provided by the care providers. On the other hand, the structured interview with questionnaire was used to assess the level of satisfaction among mothers.

The sample size of 57 mothers was determined using the formula $n = N / [1 + N (e)^2]$ Where; N = estimated population, e = level of error of tolerance (5%). A purposive sampling method was used in the selection of the mothers who gave consent to participate and affirmed that they would return to postnatal checkup. Purposive sampling method was used because only few of the mothers who had normal delivery confirmed they would return for postnatal follow-up in the facility. Mothers with still borne, postpartum hemorrhage or instrumental deliveries and caesarean section were excluded. Four data collection instruments were designed to achieve the objectives of the study, which included three checklists and one questionnaire. The checklists were adapted from WHO (2014) guideline for postnatal care to assess the structure (human resources, material resources and infrastructure), the process dimension (care provided) on the postnatal wards and postnatal clinic. A structured questionnaire was administered to the mothers to determine their level of satisfaction with postnatal care on the postnatal wards and postnatal clinic.

Ethical approval to conduct the study was issued after review by the University of Ibadan/University College Hospital Ethical Committee (NHREC/05/01/2008a). The respondents' participation in the study was voluntary and consent was obtained after giving an explanation of the study. The respondents were assured of the absence of risk by their participation and confidentiality.

The qualitative data was collected first through non-participant observation using the prepared checklists to record relevant information on the available resources in the facility and on the postnatal care provided to the women. The duration of the

Table 1. Facility Assessment.

Items	Available	Not available
facility readiness	√	
24 h availability	√	
Emergency preparedness	√	
Equipment		
Weighing scale	√	
Sphygmomanometer	√	
Stethoscope	√	
Thermometer	√	
Sterilizer	√	
Instruments	√	
Medicine		
Analgesics	√	
Antibiotics	√	
Haematinics	√	
Supplies	√	
Infection Prevention Measures	√	
Infrastructure	**Adequate**	**Not adequate**
Functional Ambulance	√	
Backup Source of Electricity?	√	√
Comfortable Beds		
Toilet and Bathroom facilities		
Regular water supply		√
Regular electricity supply		√
Staffing		√
General Medical Doctors	√	
Specialist Medical Doctors		
Midwives		√
Nurses		√
Laboratory Scientists	√	√
Pharmacists	√	
Community Health Nurses		
IEC materials	√	√
Guidelines /Protocols		
Registers	√	√
Continuous education and training in postnatal care		
Supervision	√	√
Number of Doctors (O&G)		46
Doctor patient ratio (Average)		1:8
Total score	22 (66.7%)	11 (33.3%)

observation on both the wards and the clinic was 4 weeks.

The mothers were selected for an exit interview and each respondent‘s questionnaire was marked and their phone numbers obtained to facilitate a follow up in the postnatal clinic. The mothers were followed up to their clinic appointment date, consent was obtained again and they were administered their individual questionnaires to complete on their exit from the postnatal clinic. Quantitative data obtained was analyzed using the Statistical package for social sciences (SPSS) version 22 and all results were presented using descriptive statistics, t-test, ANOVA and Chi

square test.

RESULTS

Facility assessment (structure)

The result that only 66.7% of the required resources were available in the study setting, which is an indication of poor adherence to the WHO recommendation for postnatal care facility. The facility provides 24 h services and emergency preparedness alongside the availability of basic equipment needed to meet the health needs of postnatal women (Table 1). However, electricity supply, regular water supply, bathrooms and toilets are inadequate for the care of the postnatal women. The numbers of functional bathrooms and toilets on the wards and in the clinic appear insufficient in comparison to the population of the women. There are a total of 50 beds in the postnatal wards with an average of 25 patients on each ward including antenatal patients on admission, postnatal patients who had normal delivery and those who had complicated deliveries. In each ward and the clinic, there are two functional bathrooms and toilets with no regular water supply. On the average, 25 patients are seen in the postnatal clinic every clinic day. The available specialist medical doctors, midwives are insufficient with an average midwife to patient ratio of 1:8 per shift. There are no standardized postnatal guidelines and protocols used in the provision of care to the postnatal women in the facility. Although there are various in-service trainings organized in the institution on life saving skills, evaluation of nursing care, pain management, documentation, geriatrics, care of placenta, essential care of the newborn, advancement of health care, basic trauma care and cardio pulmonary resuscitation; continuing education and training on postnatal care is lacking.

Assessment of postnatal care (process)

From the findings, only 42.9% of the required postnatal care was observed to be provided on the wards (Table 2) and 42.3% in the postnatal clinic (Table 3). This depicts poor adherence to the WHO practice guideline for postnatal care in the postnatal unit of the study setting. All women with uncomplicated vaginal delivery received care for at least 24 h after delivery in the study setting. On the wards, the initial assessment within the first 24 h after birth were conducted except checking for excessive bleeding which was not visually assessed, although the women were verbally asked if bleeding was normal or excess of 25% of the observation period. Meanwhile urine voiding resumption, frequency and characteristics were not assessed throughout the observation period. During the physical assessment beyond 24 h after birth bladder and bowel function, lochia, healing of perineal wound and breast were assessed about 30% of the observation period. Midwives were observed not to assess mothers for complaints such as headache, fatigue, back pain, and perineal hygiene during the period under investigation. Prophylactic antibiotics were prescribed for patients with perineal tears. Mothers were not provided with discharge counseling on the physiology of puerperium and danger signs. However, midwives (30%) provided counseling on family planning, maternal nutrition, breast care and follow up. Documentation was done in all cases and emotional support was observed in 16.7% of the observation period. While the only prescribed routine postnatal visit is from 6 weeks after birth and there is no provision for home visits within the first week of childbirth. A physical examination that was observed being conducted in the postnatal clinic was; blood pressure check, pallor, lochia, and uterine involution, while temperature, inspection of perineum for healing, and breasts were not assessed. Assessment of emotional and psychological wellbeing, resumption of sexual intercourse and dyspareunia were not observed in all the visits to the clinic.

Socio-demography of mothers

Table 4 illustrates the analysis of the demographic data of the postnatal women (mothers). A total of 57 mothers were sampled between the age of 20 and 40 with mean ±SD = 31±1.58. The majority (49.1%) were first time mothers. Reasons for choosing the facility included availability of modern facilities (15.4%), quality care (42.3%), convenience (11.5), and availability of good doctors (21.8%).

Mothers' level of satisfaction

Satisfaction on the postnatal ward

Findings indicated that 36.5% of the mothers were not satisfied and 28.4% were fairly satisfied with the care received on admission after delivery. The majority (94%) of the women expressed satisfaction with routine vital signs monitoring and drug administration, but were not satisfied with the inadequate water and electricity, inadequate toilet and bathroom facilities, lack of individualized care (Table 5a). The analysis of variance revealed a significant difference ($p<0.05$) between the level of mothers' satisfaction on the postnatal wards and the number of deliveries, the numbers of days they were on admission as well as the maternal age.

Satisfaction at the clinic

Majority (82.5%) of the mothers expressed good satisfaction with care received in the postnatal clinic. Specific areas of satisfaction were the attitude of the staff

Table 2. Assessment of postnatal care on the ward.

Provision of postnatal care	Done (%)	Not done (%)
After an uncomplicated vaginal birth in a health facility, healthy mothers receive care at the facility for at least 24 h after birth	12 (100)	0 (0)
Assessment within the first 24 h after birth		
Check for excessive bleeding	3 (25)	9 (75)
Check uterine contraction	8 (66.6)	4 (33.4)
Check fundal height	8 (66.6)	4 (33.4)
Check temperature	12 (100)	0 (0)
Check blood pressure within 6hours after birth)	12 (100)	0 (0)
Check blood pressure after 6 h	12 (100)	0 (0)
Check urine void in 6 h	0 (0)	12 (100)
Physical assessment beyond 24 h after birth		
Micturition and urinary continence	3 (25)	9 (75)
Bowel function	3 (25)	9 (75)
Healing of perineal wound	3 (25)	9 (75)
Headache	0 (0)	12 (100)
Fatigue	0 (0)	12 (100)
Back pain	0 (0)	12 (100)
Perineal hygiene	0 (0)	12 (100)
Breast pain, swelling or tenderness	4 (33.4)	8 (66.6)
Uterine tenderness	6 (50)	6 (50)
Lochia	3 (25)	9 (75)
Use of prophylactic antibiotics in perineal tear to prevent infection	12 (100)	0 (0)
Discharge counseling on		
Physiology of pueperium	0 (0)	12 (100)
Healthy timing and spacing of pregnancies	3 (25)	9 (75)
Family planning including LAM /transition	4 (33.4)	8 (66.6)
Maternal nutrition	4 (33.4)	8 (66.6)
Breast care and personal hygiene	3 (25)	9 (75)
Danger signs	0 (0)	12 (100)
Follow up appointment	12 (100)	0 (0)
Emotional support	2 (16.7)	10 (83.3)
Documentation	12 (100)	0 (0)
Total	141 (41.9)	195 (58.1)
Average score	**12 (42.9)**	**16 (57.1)**

at the clinic, information provided and healthcare received. However, poor satisfaction was reported in the clinical environment (waiting area, toilet and bathroom) and cumbersome registration and payment procedures in the hospital (Table 5b). Additionally, the women in this study verbalized areas of dissatisfaction which include the following: bureaucracy, poor counseling, cumbersome registration and payment processes, inadequate provider-client relationship, admissions for days more than necessary, the assumption that patient knows everything, inadequate toilet and bathroom facilities, lack of regular water supply, waiting time, much cold at night on the wards, poor attention, lack of individualized care, lack of patient specific counseling and care by inexperienced doctors at the postnatal clinic. The analysis of variance revealed that there is a significant difference ($p<0.05$) between the mothers' level of satisfaction with PNC at the clinic and the maternal age.

DISCUSSION

The findings of this study suggest that there is an insufficient human resources and infrastructure in

Table 3. Assessment of postnatal care in the clinic.

Provision of postnatal care	Done (%)	Not done (%)
Postnatal visit on day 3 (48-72 h)	0 (0)	4 (100)
Between days 7–14 after birth	0 (0)	4 (100)
Six weeks after birth	4 (100)	0 (0)
Home visits within the first week of birth	0 (0)	4 (100)
History taking	2 (50)	2 (50)
Physical examination		
Blood pressure	4 (100)	0 (0)
Temperature	1 (25)	3 (75)
Pallor	4 (100)	0 (0)
Lochia	4 (100)	0 (0)
Perineum	0 (0)	4 (100)
Involution of the uterus	4 (100)	0 (0)
Vaginal discharge	2 (50)	2 (50)
Breasts	0 (0)	4 (100)
Assessment of emotional wellbeing (mood, social support and coping strategies)	0 (0)	4 (100)
Assessment of psychological wellbeing	0 (0)	4 (100)
Resumption of sexual intercourse and dispareunia	0 (0)	4 (100)
Counseling on/ Information given to client		
Physiology of pueperium	0 (0)	4 (100)
Danger signs	2(50)	2 (50)
Healthy timing and spacing of pregnancies	2 (50)	2 (50)
Family planning including LAM /transition	4 (100)	0 (0)
Maternal nutrition	2 (50)	2 (50)
Breast care and personal hygiene	2 (50)	2 (50)
Assessment of client's understanding	2 (50)	2 (50)
Emotional support	1 (25)	3 (75)
Interpersonal care/rapport	1 (25)	3 (75)
Documentation	4 (100)	0 (0)
Total	45	59
Average score	**11 (42.3)**	**15 (56.7)**

accordance with the recommendations of the WHO. As explained by Donabedian (1988), poor structural quality will affect the provision of postnatal services to mothers and eventual outcome of postnatal care in this facility. Lotto (2015) also linked inadequate postnatal facility for the quality postnatal care to eventual decrease in the quality of postnatal services.

The facility is deficient in the staffing of Midwives and Doctors who are central to the provision of postnatal care to mothers. The average midwife: patient ratio in this study setting is 1:8 on the postnatal wards which is below the recommended standards and what is peculiar in more developed economies. Adelani et al. (2015) also observed a nurse/midwife to patient ratio ranging from ratio1:9 in a general hospital in Osun state, Nigeria. The NICE postulated for the Australian Nursing and Midwifery Federation a midwife/nurse to patient ratio of 1:4 plus a charge nurse in the morning and afternoon shift and 1:6 on the night shift (ANMF, 2015). The British Columbia Nurses Union (2016) on the other hand, recommended a range of midwife to patient ratio of 1:4 to 1:6 in an inpatient unit.

There are 46 Obstetrics/Gynecology specialists in this facility which are insufficient as opined by Agboghoroma and Gharoro (2015) in their study. They submitted that the number of Obstetrics/Gynecologists in Nigeria is inadequate in view of the population size, when computed this suggest a ratio of 1:181458 patients. When compared with the WHO (2010) recommendation of a ratio of one obstetric/Gynecologist to one thousand patients (1:1000), this is a far cry and may contribute to the poor maternal care services. In line with this majority of the women in a study in Nigeria submitted that the health providers are burdened with heavy workloads in

Table 4. Socio-demographic Variables of Mothers.

Variables	Frequency	Percentage (%)	
Age (In years)			
20-24	5	8.8	**Mean age = 31 year**
25-29	14	24.6	**SD =** 1.58
30-34	31	54.4	
35-40	7	12.2	
Marital status			
Single	5	8.8	
Married	52	91.2	
State of origin	45	78.9	
Western state	8	14.1	
Eastern state	4	7	
Northern state	14	0	
Southern state	14	0	
Level of education			
No formal education	14	0	
Primary school	6	10.5	
Secondary school	10	17.6	
Diploma	41	71.9	
Degree	14	0	
Others	24	42.1	
Occupation			
Civil servant	9	15.8	
Private institution employee	9	15.8	
Trading	10	17.6	
Self-employed	5	8.8	
Unemployed	14	0	
Others	24	42.1	
Number of pregnancies			
1	19	33.3	
2	9	15.8	
3	3	5.3	
4	2	3.5	
>4	28	49.1	
Number of deliveries			
1	16	28.1	
2	9	15.8	
3	2	3.5	
4	2	3.5	
>4	39	68.4	
Number of deliveries in UCH?			
1	12	21.1	
2	2	3.5	
3	2	3.5	
4	2	3.5	

Table 4. Contd.

>4	14	0
Number of days spent on admission in the last delivery		
1	6	10.5
2	27	47.4
3	15	26.3
4	9	15.8
>4	12	15.4
Reason for choosing UCH		
Modern facilities	33	42.3
Quality care	7	9
Referral	9	11.5
Convenience	17	21.8
Availability of good doctors	0	0
Others		

Table 5. Mothers' level of satisfaction.

Variable	Fully satisfactory (%)	Fairly satisfactory (%)	Not satisfactory (%)
		(a) On the ward	
Orientation to the hospital and ward	14.2 (24.9)	18.3 (32.2)	24.5 (42.9)
Informed consent	20 (35.1)	23 (40.3)	14 (24.6)
Attitude of care providers	23 (40.3)	21.7 (38.1)	12.3 (21.6)
Quality of ward environment	10 (17.5)	20 (35.1)	27 (47.4)
Postnatal care received	20 (35.1)	16.2 (28.4)	20.8 (36.5)
Professionalism of care providers	28 (49.1)	21 (36.8)	8 (14.1)
Health education and counseling	7.5 (13.2)	11.5 (20.2)	38 (66.6)
Overall assessment of the ward	18 (31.6)	19 (33.3)	20 (35.1)
		(b) In the clinic	
Waiting time	16 (28)	20 (35.2)	21 (36.8)
Registration process	14 (24.6)	19.5 (34.2)	23.5 (41.2)
Attitude of clerical staff	30 (52.6)	13 (22.8)	14 (24.6)
Quality of clinic environment	10 (17.5)	19 (33.3)	28 (49.2)
Attitude of postnatal care providers	26.7 (46.8)	26 (45.7)	4.3 (7.5)
Postnatal care received	22 (38.6)	20 (35.1)	15 (26.3)
Overall assessment of the postnatal clinic	24 (42.1)	23 (40.4)	10 (17.5)

the provision of maternal health care and linked the burden to the low quality of care (Ogu et al., 2017).

The high patient ratio to each of the postnatal care providers may be a contributing factor to the suboptimal quality of postnatal care offered at this facility. Empirical evidences suggest the number of patients allocated to a health provider on a shift is directly related to patient safety, patient satisfaction, mortality and quality of care (ANMF 2015). It is therefore imperative for the Nursing and Midwifery Council of NIGERIA and the National Association of Nigerian Nurses to collaborate to design a standard nurse: patient ration that is suitable to Nigerian health need which should also apply to the Nigerian medical association.

Consequently, the legislation of standard ratio would serve as a baseline for employment in all government hospitals in the country, reduce waiting time, improve the quality of care, improve retention of health providers as a result of better and safer working environment, increase capability of hospitals to meet patient demands, and

improves the economic performance of hospitals. Inadequate in-service training was also observed in this study, as none of the 50 postnatal care providers who had continuous education in the last 2 years had any training on postnatal care. Continuous training and education is an essential pre-requisite for quality improvement in the provision of services and also contributes to quality of inpatient and outpatient care (Chaghari et al., 2017). Staff shortages and inadequate in-service training were also observed in China (Chen et al., 2014) while Chimtembo et al. (2013) in addition to inadequate facility, identified poor postnatal counseling in their study in Malawi.

There is non-availability of a guideline or protocol for the postnatal care of mothers in the study setting, as such there is no laid down standard for care givers in providing their services. Some healthcare providers in Tanzania also perceived that postnatal care was suboptimal in their facilities resulting from care being based on clinical experiences due to lack of guidelines and inadequate health personnels (Pallangyo et al., 2016). Kopp (2011) opined that use of clinical guidelines is an indispensable part of a professional quality system, and is an important tool to improve the knowledge, processes and outcomes in healthcare. They also provide a foundation for assessing and evaluating the effectiveness of healthcare.

The findings in this study suggest that the routine postnatal care provided in both the postnatal clinic and the wards of the facility are below the standard in accordance with WHO practice guidelines. This finding is supported by Chimtembo et al. (2013) whose study in Malawi revealed that the contents of postnatal services were below reproductive health standards. A sub-standard process component of postnatal care was also observed by Lotto (2015) in Tanzania. Luegmair et al. (2018) identified shortcomings in puerperal care and counseling in their study in Austria. Assessment is the second recommendation on the WHO (2014) practice guideline for postnatal care which was found to be poorly adhered to in this setting. Routine assessments are important for early identification of complications, prompt treatment or referral as needed. The majority of the assessment within the first 24 h after birth was done while the majority of the assessment beyond 24 h after birth was not done. Assessment of the psychological and emotional wellbeing of the mothers was not given much attention. Kanyunyuzi et al. (2017) study in Uganda revealed that assessment of the mothers after admission to the postnatal ward was found to be low.

Poor adherence to practical guidelines identified in this study can be attributed to the non-availability of a standard guideline in this facility, inadequate human resources and infrastructure amongst others. To achieve this vision of “every pregnant woman receives quality care throughout pregnancy, childbirth and the postnatal period”, six strategic areas have been identified by the WHO (2016) for improving the quality of maternal care namely; clinical guidelines, standards of care, effective interventions, quality measures, and the relevant research and capability building. The results of the evaluation of this study revealed that mothers received postnatal services that were below the WHO standard of quality postnatal care an indication of poor compliance with the guideline. In this study, 36.5% of the mothers were not satisfied and 28.4% were fairly satisfied with the overall postnatal care received on the postnatal wards. This was also the findings of Okonufua et al. (2017) who evaluated 8 secondary and tertiary hospitals in Nigeria. Many of the mothers had areas of dissatisfaction, or were not satisfied at all with the quality of care in antenatal, intra-partum and postnatal period. Reasons for dissatisfaction with postnatal care included poor staff attitude, long waiting time, high cost of services, and sub-standard facilities.

Most of the participants in a Pakistan study verbalized low quality of maternity care, disrespect and impolite behavior of health professionals (Munawar et al., 2017). On the other hand, Sacks et al., (2017) submitted that a large proportion of their participants reported positive postnatal experiences with more satisfaction among the Zambian than the Ugandan women. The third hypothesis tested in this study found a relationship between maternal satisfaction on the wards and the age and parity of the mother out of all the other selected maternal socio-demographic characteristics tested. While the fourth hypothesis revealed the absence of a significant difference between maternal satisfaction on the ward and in the clinic. Therefore, it is important for postnatal care providers to provide individualized, age and parity appropriate care to mothers in order to be able to meet their various health needs and yield satisfaction.

It was observed that this facility does not have any system in place for measuring outcomes of postnatal care. Measuring the quality of health care provided is an important evaluation that leads to improved care and accountability among care providers. Patient satisfaction in one of the indicators of quality care and it requires the provision of patient-centered care (including health education and counseling). Patient-centered care is health care that is respectful of, and responsive to, the preferences, needs and values of patients and consumers. Therefore, the quality of PNC in this facility can be greatly improved by the provision of individualized care and regular evaluation of patients through various feedback mechanisms. There should be awareness of feedback mechanisms among patients followed by inquiry through feedback questionnaires and other platforms (interviews, group discussions, online reviews etc) for expressing their complaints, satisfaction and suggestions on exit from the facility. There should be record keeping and analysis of degree of patients’ satisfaction through which gaps in care can be identified and resolved. Regular feedback evaluation will also promote accountability among the health care givers.

Additionally, hospital managers should ensure availability and adherence to guidelines and protocols in all the hospital department and wards. The hospital should also have a unit in charge of formulating protocols from recent evidences, from research and guidelines. In-service training of health workers should be specific to their units and specialties within the hospital.

Conclusion

The findings of this study have shown a poor adherence to the international practice guideline for postnatal care in the study setting in the structural, process and outcome aspects of postnatal care. Maternal satisfaction was good on exit from postnatal clinic and poor on exit from the postnatal wards. There is a need to strengthen the facility by availability of recommended resources and also need to have a standard guideline that will serve as a framework for provision of quality postnatal care.

CONFLICT OF INTERESTS

The authors have not declared any conflict of interests.

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Full Length Research Paper

Prevalence of male attendance and associated factors at their partners' antenatal visits among antenatal care attendees in Bale Zone, South East Ethiopia

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Male involvement in antenatal care helps to have safe delivery, especially in developing countries. The problem has been insufficiently studied in Ethiopia. Therefore, this study assessed male attendance and associated factors at their partners' antenatal visits among antenatal care attendees in Bale Zone health facilities. Cross sectional study was conducted from May to June, 2017 among 609 pregnant mothers. Simple random sampling was used to select participants. Interviewer administered questionnaire was used to collect data. Data was entered into Epi-data version 3.1 and analyzed using statistical package for social sciences (SPSS version 21). Variables with p-values <0.05 were considered to declare statistical significance in multivariable logistic regression analysis. Male attendance at their partners' antenatal visits was 41.4%. Having primary level of education (AOR=2.15, CI=1.12, 4.11), age ≥ 35 years (AOR=0.3, CI=0.1, 0.87), being farmer (AOR=0.23, CI=0.11, 0.51), having previous antenatal care visit (AOR=0.49, CI=0.26, 0.92) were factors associated with male partner involvement. Male attendance at their partners' antenatal visits was low. Hence, health providers and other stakeholders shall create awareness and implement strategies to boost male partners' involvement in antenatal care visit.

Key words: Antenatal visits, Bale-Zone.

INTRODUCTION

Antenatal care (ANC) is the pillars of safe motherhood and an essential elements of safe delivery (Kariuki and Seruwagi, 2016). The need for male involvement in reproductive health was one of the fore-front agenda during the International Conference on Population and Development (UNFPA, 1999). Male involvement is highly desirable in maternal health (Lowe, 2017). Because male attendance during ANC is an important strategies to reduce preventable maternal problems during pregnancy (Jennings et al., 2014). But, accessing maternal health

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care services seems females' predominant responsibility and men often do not have access to participate in maternal health care services (Lowe, 2017; Kenneth et al., 2016; Bhatta, 2013). Many men do not believe that pregnancy requires their responsibility as compared to other competing social responsibilities (Jennings et al., 2014).

Although, there is reduction in maternal death and increased skilled birth attendants coverage, mothers still face unacceptable risks of death related to pregnancy, labor, and delivery (WHO, 2016). More than 50% of the global maternal deaths are due to pregnancy related complication (Kissoon et al., 2015). The World Health Organization (WHO) estimates that 303,000 women died during pregnancy and childbirth in 2015 and 99% of these maternal deaths occurred in developing countries (Kariuki and Seruwagi, 2016). An estimated 353 maternal deaths per 100,000 mothers occurred in Ethiopia where 85% of births took place at home. Evidence shows that ANC services in most developing countries to be under-utilized, median coverage rate of at least one ANC visit at 88% and four or more ANC visits at 55% (1,7,9). In Ethiopia, 57% of women attended at least one ANC visit, and 32% attended the recommended four visits (MOH, 2014).

Male participation in sexual and reproductive health is central component in empowering women (UNFPA, 1999), and different strategies have been tried to increase male attendance, mass media advertisements, incentives to women who attend ANC with their male partners, invitations to male partners to attend ANC (Osoti et al., 2014). For example in Malawi and Tanzania, providing invitation cards during pregnancy enhances male partner involvement by 50% (Nyondo et al., 2015; Jefferys et al., 2015).

Nevertheless, in most developing countries where patriarchist is dominant, it is uncommon to see male attendance during ANC(4). Men do not involve in antenatal and postnatal care, family planning and being encouraged (Sokoya et al., 2014; Mullick et al., 2005; Mullany et al., 2006; Kaye et al., 2014). This is true throughout sub-Saharan Africa, where pregnancy and childbirth is considered to be the responsibility of the woman (Kariuki and Seruwagi, 2016). In addition, to men reluctance to engage in maternal health service, health care providers like nurses have negative attitudes towards men (Ladur and Colvin, 2015).

Male attendance during ANC is important to find solutions to the main factors of maternal death: delay in decision-making to refer the mother to health facility; lack of transport in case of obstetric complications; and delay in receiving treatment within the health care facility (Kariuki and Seruwagi, 2016; Jennings et al., 2014; Ampt et al., 2015). In addition, it helps to reduce postpartum depression, improved utilization of maternal health services (Yargawa and Leonardi-bee, 2015), increases women willingness to recognize danger sign of pregnancy, attends the delivery, shortens labor, reduced need for oxytocin, anesthesia, and instrumental deliveries and reduces chance of cesarean section by 50% (Olayemi et al., 2009; Alva, 2012), increase antenatal care appointments and delivery services (Sokoya et al., 2014; Modarres, 2005). Male attendance also increases uptake of the uptake of maternal antiretroviral therapy among HIV-seropositive pregnant women (Takah et al., 2017).

Though male participation in maternal care is increasing, their attendance in providing general support is often limited (Meier, 2015), and their involvement dutring ANC varied from country to country. In developed countries, around 95% male attended at their partners ANC, but it is low in developing countries like Ethiopia (Asefa, 2014; Ganle and Dery, 2015; Vermeulen et al., 2016).

In Nepal, male partner helps the teens to attend ANC, but the women herself among adult women (Upadhyay et al., 2014). Another studies in Nepal, Malawi and Democratic republic of Congo (DRC) indicated women who received education with husbands and partner notification had more chance to have maternal care services (Mphonda et al., 2014; Mullany et al., 2006; Gill et al., 2017; Kululanga et al., 2011).

In rural and peri-urban area in Uganda, 42 to 66% of mothers have been accompanied by husbands during antenatal care (Tweheyo et al., 2010; Kakaire et al., 2011) In Nigeria, around 48% of women did not think it was their husbands' place to attend antenatal clinic, 73% of husbands accompanied their wives to the hospital for their last delivery (Olayemi et al., 2009), 82.4% had desire to accompany during ANC clinic visits; 14.2% male partners attended previous delivery and 84.8% of the women were satisfied with the experience (Abiodun et al., 2015). Another study in Northern Nigeria, showed 62% of men believed that their presence was not needed (Zubairu et al., 2010).

In Johannesburg, South Africa, 92% of mothers preferred their husbands attendance at ANC and 14% reported that their husbands attended during the current pregnancy (Yende et al., 2016). In rural Rwanda, the level of men ANC attendance was 29.4%, while 22.3% women were accompanied to the labor ward (Richard, 2016). A study conducted in Ghana indicated that 35, 44, and 20% of men accompanied their partners to antenatal care, delivery, and postnatal care services, respectively (Craymah et al., 2017).

In Kenya, 72% of mothers felt that their male spouses should at least set aside while 54% indicated that they wanted their male partners to be accompanying them (Nanjala and Wamalwa, 2012). Another study in Kenya showed 63% of women consented to male participation, but male accompany during ANC is only 26.2% (Aluisio et al., 2016). In Burkina Faso, to make use of maternal care, they need consent of a member of the family particularly, the partner (Somé et al., 2013).

In Ethiopia, male attendance during ANC ranged from 20 to 60% (Asefa, 2014; Haile and Brahn, 2014) and husband's approval has a greater effect on maternal care utilization especially for women under the age of 20 years (Biratu and Lindstrom, 2006). This might be due to the traditional view that men are autonomous and have great control over social, economic and their partners.

Maternal age and parity less than four (Abiodun et al., 2015), residence, educational status, last delivery in health facility (Olayemi et al., 2009; Asefa, 2014; Abiodun et al., 2015; Tweheyo et al., 2010), male partner attended prenatal health education (Kariuki and Seruwagi, 2016; Mullany et al., 2006; Wai et al., 2015), long waiting time at the health unit, lack of transport, walking distance ≥ 1 h to health facility, fear of being tested for HIV, being polygamous, having a concurrent task or job demand, non-invitation by the wife, poor communication between men and female are factors associated with low male attendance during ANC (Tweheyo et al., 2010; Byamugisha et al., 2011).

Higher maternal education level and formal occupation of spouse are associated with male partner involvement (MPI) (Richard, 2016). In Ethiopian, occupation of women being a rural resident, age difference between a wife and their spouse (Asefa, 2014), and lower husband educational level (Addisalem, 2014) contributed for low male involvement while employed mother, living together and previous history of couple counselling increase the chance of male involvement during ANC (Haile and Brahn, 2014; Addisalem, 2014).

Male attendance in maternal health is often ignored by health programs in developing countries. In Ethiopia, few researches were conducted regarding male partners' attendance during ANC. Therefore, this study aimed to assess the level of male attendance and associated factors at their partners' antenatal visits among antenatal care attendees in Bale Zone, South East, Ethiopia. Hence, findings of the study would help to inform policy makers to design appropriate programs that enhance males' involvement in antenatal care and act on gaps identified. Furthermore, findings would be used as a resource to other researchers on these issues.

Operational definitions

Male partner

Is an individual with whom the pregnant woman was in intimate sexual relationship and was responsible for her pregnancy whether they were legally married or not.

Male partner involvement

Husband's attendance at the time of antenatal checkup and husband's participation in birth preparedness measured based on the women's reports. The variable was coded as "Yes" if the woman attended ANC and her spouse accompanied her; "No" if the woman attended ANC but her spouse did not accompany her.

MATERIALS AND METHODS

Study design, period and setting

Institutional based cross-sectional study was conducted among 609 pregnant women who were attending antenatal care in selected health facilities of Bale zone from May to June, 2017.

Sample size, technique and procedures

Single proportion formula was used to calculate the sample size by assuming Z α/2 = 1.96 (standard score value for 95% confidence level of two sides normal distribution), p = 59.9%, d (tolerated margin of error) = 5%, non-response rate = 10%, and design effect = 1.5. Using simple random sampling technique, 20% (16 health centers) of health centers (HC) and all hospitals (4 hospitals) were selected based on the proposed sample fraction guideline for assessing the operation of District Health systems developed by WHO regional office for Africa (Sambo et al., 2003). The sample size was determined by proportionate allocation formula based on their average monthly intake of antenatal services provided by each health facilities.

Study variables

The main outcome variable was prevalence of male partners' attendance during the current ANC while the independent variables were demographic information (age, marital status, level of education, occupation residence, religion, living status, number of live children, years living with husband, type of marriage (marriage, cohabiting, divorce, and/or separated), family size, age at first marriage, obstetrics characteristics (gravida, parity, intention of pregnancy and ANC follow up) and perception of women towards paternal involvement.

Data collection tools and procedures

The data was collected using pre-tested structured interviewer administered questionnaire. The questionnaire was designed by the researchers after reviewing literatures. All questionnaires were prepared in English language, and then translated to Afan Oromo and Amharic (local language) which were used for data collection and re-translated back to English to check for any inconsistencies. To keep quality of data, pretest was conducted; half day training was given to data collectors and supervisors and completed questionnaires were reviewed to check for its consistency and completeness.

Ethical approval

Ethical review committee of College of Medicine and Health Sciences, Madda Walabu University approved the study. Permission to conduct the study was obtained from Bale Zone administrative office and written informed consent was taken from each participant.

Data analysis

The completed questionnaires were checked for completeness,

Table 1. Socio-demographic characteristics of the respondents to assess prevalence of male attendance and associated factors at their partners' antenatal visits among antenatal care attendees in Bale Zone, South East Ethiopia, 2017.

Characteristic/Variable	Frequency	Percentage
Age category in years		
Mean ± SD	26±5	-
15-24	226	37.1
25-34	329	54.0
≥35	54	8.9
Residence category		
Urban	288	47.3
Rural	321	52.7
Religion		
Muslim	236	38.8
Orthodox	333	54.7
Protestant	38	6.2
Others *	2	0.3
Respondents education		
No formal education	179	29.4
Primary education	199	32.7
Secondary	146	24.0
College/University	85	14.0
Husbands' education		
No formal education	151	24.8
Primary education	171	28.1
Secondary	139	22.8
College/University	148	24.3
Marriage		
Legally married	576	94.6
Another form of relationship**	33	5.4
Marriage order		
First wife for the husband	522	85.7
Not first wife for the husband	87	14.3
Age at first marriage (years)		
10-14	15	2.5
15-20	482	79.1
>20	112	18.4
Respondents occupation		
Housewife	387	63.5
Employed	87	14.3
Merchant	71	11.7
Farming	48	7.9
Other***	16	2.6
Husbands' age		
15-24	27	4.4

Table 1. Contd.

25-34	359	58.9
>=35	223	36.6
Husband occupation		
Employed	161	26.4
Merchant	118	19.4
Farming	297	48.8
Other****	33	5.4
Length of living with husband		
<5	272	44.7
5-10	204	33.5
>10	133	21.8
Time to reach health facility		
<15	155	25.5
16-30	206	33.8
>30	248	40.7
Means of transportation		
On foot	315	51.7
Cart/Animal	142	23.3
Car	152	25.0

*Seventh day Adventist, **Cohabit and divorced, ****Drivers, carpenters and tailors.

edited sorted and entered into Epi-Data version 3.1, and exported to version 21 of Statistical Package for the Social Sciences (SPSS) for analysis. The assumption of logistic regressions was checked. Then, binary logistic regression analysis was done to see the independent effect of predictors on the dependent variables and predictors with P-valve ≤ 0.25 were entered in the multivariable logistic regression analysis model to identify final predictors of male involvement during ANC after controlling other independent variables. Odds ratio and 95% CI were calculated and P≤0.05 was considered statistically significant. Finally, the result was described in text form and summarized and presented in tables and graphs.

RESULTS

Socio-demographic characteristics of the study participants

All (609) study participants were interviewed that gave a response rate of 100%. The age of the participants ranged from 15 to 40 years (mean: 26±5 years). Three hundred and twenty one (52.7%) and 576 (94.6%) were from the rural area and legally married, respectively. Almost 200 (32.7%) of the participants had attended primary level of education. In terms of occupation, 387 (63.5%) were house wives, while 297 (48.8%) of their husband were farmers. Around 480 (79.1%) and 270 (44.7%) of the study participants were married in the age group of 15 to 20 years and have lived with their partners less than five years, respectively. To access health facility, 248 (40.7%) of the respondents traveled more than 30 min (Table 1).

Pregnant women's expectation from their male partners in antenatal care involvement

The majority, 515 (84.6%) of the respondents responded "yes" to the question "should male attend ANC visit?" with their pregnant partner. Five hundred thirty-six (88.0%) of the respondents reported that male partners should be educated about pregnancy with their partner; of this 79.5% mentioned, a male whose wife is pregnant should be educated how to support the pregnant mother. Majority respondents agreed, there must be legitimate enforcement for a male to attained ANC visit (82.1%), and 90.5% on HIV testing at ANC visit (Table 2). Among 252 husbands came with their pregnant partners, only 36.0% were informed about the presence of HIV counseling and testing (Table 2). The vast majority of respondents (94.9%) liked someone with them during labor. Two hundred and eighty (48.4%) of the respondents, among those who needed someone during delivery (their husband); followed by those who needed their mother 43.4%. Five hundred and four (82.8%) respondents had believed that they had good

Table 2. Pregnant women's expectation from their male partners' attendance during ANC in Bale Zone health science, South East, Ethiopia, 2017.

Variable	Category	Frequency	Percentage
Should male attained ANC visit	Yes	515	84.6
	No	94	15.4
Husband informed about the availability of VCT at the ANC	Yes	220	36.1
	No	33	5.4
Is it necessary to educate male whose wife is pregnant	Yes	536	88.0
	No	73	12.0
Reasons to educate male at whose wife is pregnant	Effect of pregnancy on the woman	337	55.3
	How to take care of a pregnant woman	484	79.5
	Problems during pregnancy	354	58.1
	Sex during pregnancy	186	30.5
Like someone to be with you in labor and delivery	Yes	578	94.9
	No	31	5.1
Who will you like to be with you	Husband	280	48.4
	Mother	251	43.4
	Mother-in-law	26	4.5
	Other	22	3.8
Agree if there is a legal enforcement for male to attained ANC visit	Yes	500	82.1
	No	109	17.9
Agree if there is a legal enforcement for male testing at ANC	Yes	551	90.5
	No	58	9.5
Communicate about ANC/pregnancy with your husband	Yes	504	82.8
	No	105	17.2

communication about ANC/pregnancy with their husband (Table 2).

Prevalence of male attendance at their partners' antenatal visits

In this study, the prevalence of male partner involvement was 253 (41.4%). More than half of the respondents 357 (58.6%) were not accompanied by their partner during ANC (Figure 1). Reasons for not accompanied by their male partner were husband working in another town 138 (37.1%), not the custom 104 (17.1%) and it is women affair 83 (13.6%) (Figure 2).

Pregnancy and delivery history of the respondent

Around 219 (36%) of mothers attended their second visit in the current pregnancy. Their gravidity ranges from 2 to 12 pregnancies and 388 (63.7%) had <3 pregnancies. Around 480 (78.3%) of the respondents had ≤3 children. Almost 78% of recent last pregnancy was planned and 19% of them had no ANC follow up history. Among 352 (95.7%) respondents asked permission from their husband. Two hundred eighteen (35.8%) gave past birth at home before the current pregnancy and 27.3% faced delivery related problems, prolonged labor 57.8%, and excessive vaginal bleeding 41.0% (Table 3). During labor and delivery, 578 (94.9%) want company, 280 (48.4%) prefer the male partner with 501 (91.2%) who reported their partner supported them and 121 (22.2%) felt less pain as a result of being accompanied by male partner (Table 3). One hundred and ninety-seven (32.3%) of the respondents faced different pregnancy related problems of which a severe headache, that accounts for 47.7%, was the leading problem followed by blurred vision and vaginal bleeding, 36.5 and 34.5%, respectively (Figure 3).

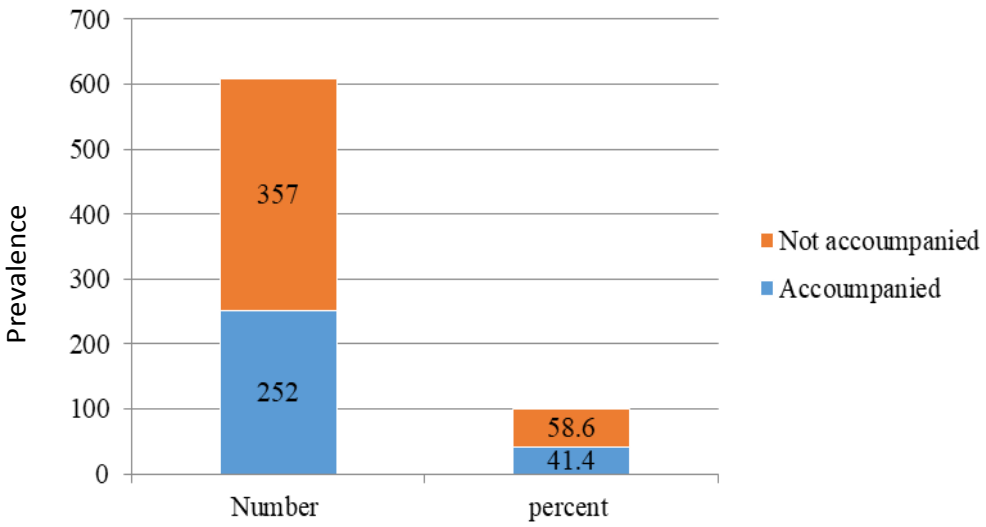

Figure 1. Prevalence of male attendance at their partners' antenatal visits among antenatal care attendees in Bale Zone, South East Ethiopia, 2017.

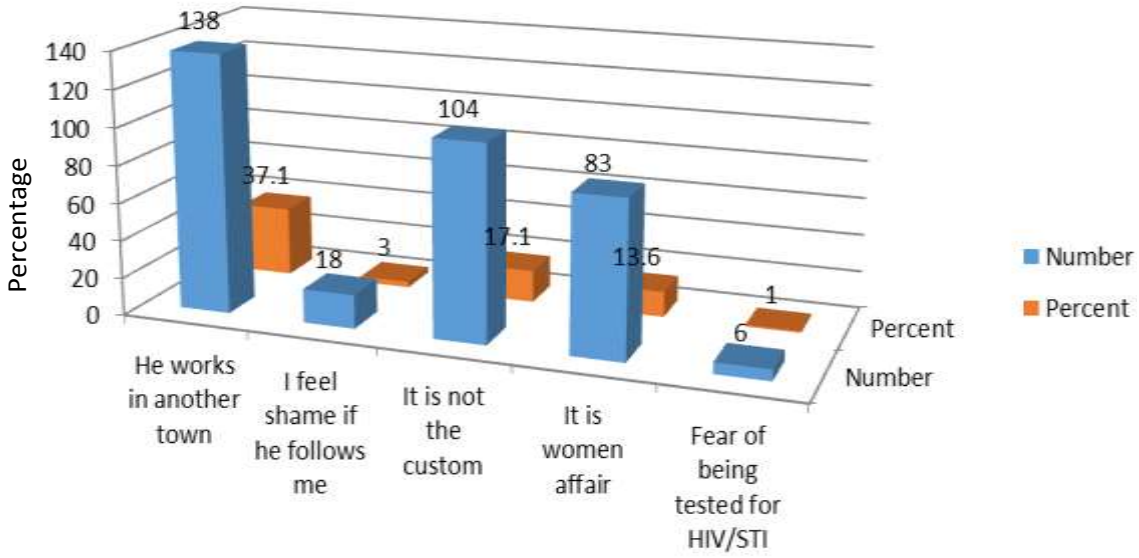

Figure 2. Reason of husband not attending at their partners' antenatal visits among antenatal care attendees in Bale Zone, South East Ethiopia, 2017.

Factors associated with male partner involvement

In the bivariate analysis, participant age ≥35 years, husband age ≥35 years, level of education, occupation, age difference, having good communication, believing male should attend ANC, husband accompanied in recent delivery, means of transport had association with male partners attendance during their ANC visits. The odds of women age ≥ 35 years were 0.3 times less likely to have their partner attendance during ANC as compared to those in the age group of 15 to 24 years (AOR: 0.3, 95% CI: 0.1, 0.87). The odds of having husband with primary level of education were 2.15 times more likely to have male attendance during ANC (AOR: 2.15, 95% CI: 1.12, 4.11). The odds of having age difference ≥ 5 years between a wife and husband were 1.78 times more likely to have male partners attendance during ANC (AOR: 1.78, 95% CI: 0.49, 0.26). The odds of being farmers were 0.23 more likely not to attend ANC (AOR: 0.23, 95 CI: 0.11, 0.51). The odds of having previous ANC attendance was 0.49 times more likely to have male attendance (AOR: 0.49, 95% CI: 0.26, 0.92).

Table 3. Pregnancy and delivery history of the respondents in Bale Zone health facilities, south east, Ethiopia, 2017.

Variable	Category	Frequency	Percentage
Number ANC of visit for current pregnancy	First visit	187	30.7
	Second visit	219	36.0
	Third visit	121	19.9
	Forth visit and above	82	13.4
Number of gravida (pregnancy)	<3 pregnancy	388	63.7
	3-5 pregnancy	124	20.4
	>5 pregnancy	97	15.9
Number of children	<3 children	477	78.3
	≥3 children	132	21.7
Last previous pregnancy planned	Yes	473	77.7
	No	136	22.3
Did you attend ANC in last pregnancy	Yes	494	81.1
	No	115	18.9
Ask any permission to attained ANC	Yes	366	60.1
	No	243	39.9
Whom did you ask permission	Husband	352	95.7
	Mother	9	2.4
	Mother In-law	7	1.9
Any obstetric problems with previous pregnancies	Yes	197	32.3
	No	412	67.7
Health measures were taken	Taken to health institution	160	81.2
	Taken to traditional healings	8	4.1
	No measure was taken	29	14.7
Place of delivery in previous pregnancy	At home	218	35.8
	At health institution	391	64.2
Male partner accompany during child birth?	Yes	545	89.5
	No	64	10.5
Outcome of male partners presence	I felt less pain	121	22.2
	He supported me	501	91.2
	He increased my anxiety	22	4.0
Any health problem during the last delivery	Yes	166	27.3
	No	443	72.7
Types of the problem faced during recent and last delivery	Prolonged labor	96	57.8
	Excessive vaginal bleeding	68	41
	Retained placenta	36	20.4

Women who think the male should attend ANC were11.04 times (AOR: 11.04, 95% CI: 4.82, 25.31) more likely to more than male attendance during ANC. The odds of having good communication with their male partner were 2.97 times more likely to have their male attendance during ANC visits (AOR: 2.83, 95% CI: 1.45, 5.52) (Table 4).

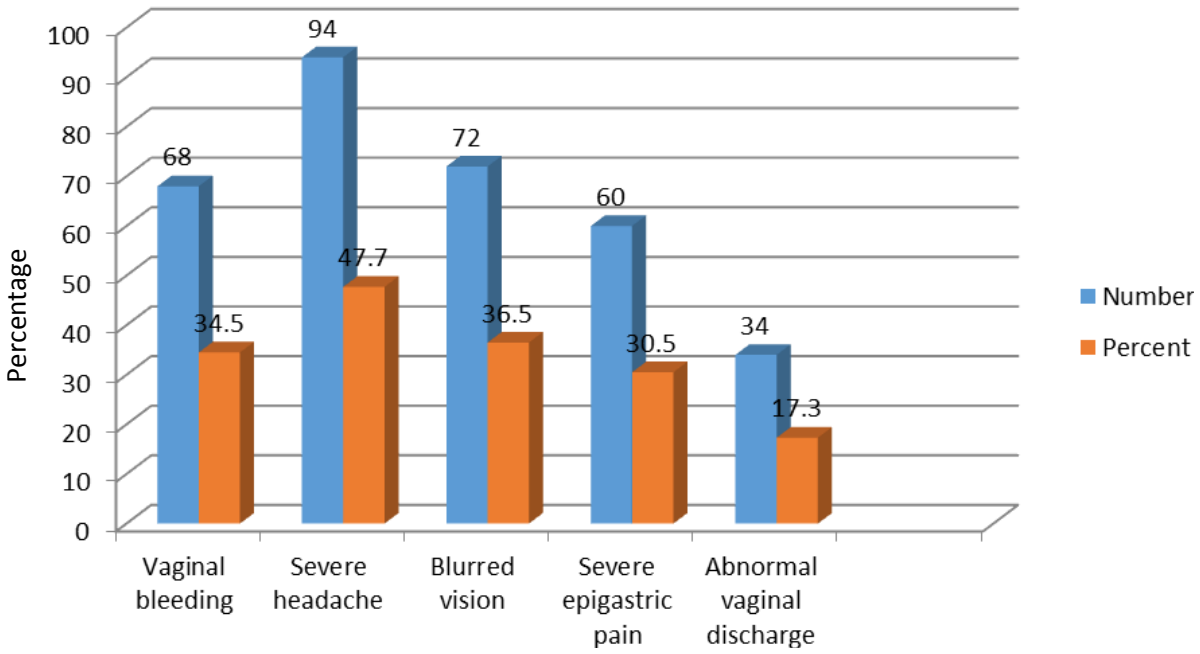

Figure 3. Types of health problem faced during pregnancy among ANC attendees in Bale Zone Health facilities, 2017.

DISCUSSION

This study generated information regarding male attendance and associated factors at their partners' antenatal visits among antenatal care attendees. Accordingly, the prevalence of male attendance at their partners' ANC visit was low (41.4%) which means fewer number of women reported that their partners attended during their ANC follow up. This finding is higher than studies conducted in Harari (19.7%), Tigray (24.7%), and Fentaly, Ethiopia (30.5%), and Wakiso, Uganda (6%) (Asefa, 2014; Kariuki and Seruwagi, 2016; Gebrehiwot et al., 2012). Since, ANC is government concern in the world; husbands might get information regarding their responsibility during ANC. The finding is lower than study findings in Inda and Gulu districts, Uganda, Ambo and Addis Ababa, Ethiopia (Tweheyo et al., 2010; Addisalem, 2014; Dereje, 2016; Abhishek, 2009). This difference might be due to the difference in time and residence of the participants.

The participants reported husband working in another town (37.1%), not a custom (17.1%) and its women's affair (13.6%) were reasons of non-accompany. The findings are similarly to a study conducted in Harari where respondents stated that their partners were occupied with routine jobs (54.6%), males consider the ANC as the sole responsibility of the wife/women 13.6% (Asefa, 2014) and in Nigeria where husbands were working in another town (41.5%) and not a custom (9.2%) (Abiodun et al., 2015).

In this study, majority (95.7%) of the respondents asked their husband to have ANC. This finding is likely similar to a finding in Burkina Faso where pregnant mothers asked their male partners to consent to visiting health facility (Somé et al., 2013). This might be due to male are dominant in deciding the family issues in sub-Saharan Africa.

Most of the respondents reported that they want their male partners' participation during ANC. They stated that male partners' education regarding how to support the pregnant women, problems during pregnancy and sexual relation during pregnancy is necessary. These findings are almost similar to a study in Harari, Cameroon and Nigeria where women wanted their partner's involvement in ANC and male partners need to be educated on the care of pregnant women (Asefa, 2014; Abiodun et al., 2015; Nkuoh et al., 2013).

Being from rural residences, increased age difference (≥5 years) between women and their male partner increases the likelihood of non-attendance during ANC. The finding is supported by study conducted in Harari, Ethiopia (Asefa, 2014), and Fentaly district, Ethiopia where pregnant mothers living in urban were more likely to have male attendance.

Male partner who have educational level of primary and above are more likely to involve in their partners ANC visits. This finding is supported by studies conducted in India, Uganda and Nigeria where increased educational level was associated with more attendance in maternal care (Zubairu et al., 2010; Kariuki and Seruwagi, 2016).

But, maternal educational level has no association with male partner involvement during ANC which supports a study finding in Kinshasa (Gill et al., 2017). This might be explained by male partners with some basic level of

Table 4. Bi-variable and multivariable logistic regression of factors related to male attendance at their partners' antenatal visits among antenatal care attendees in Bale Zone, South East Ethiopia, 2017.

Characteristic	Male partner Involvement		COR (95% CI)	AOR (95% CI)
	Accompanied	Not-accompanied		
Age of respondents				
15-24	104 (41.3)	122 (34.2)	1	1
25-34	126 (50.0)	203 (56.9)	1.17 (0.90-1.52)	0.58 (0.31-1.08)
≥35	22 (8.7)	32 (9.0)	1.61 (1.29-2.01)	0.30 (0.10-0.87)
Husband age in year				
15-24	15 (6.0)	12 (3.4)	1	1
25-34	159 (63.1)	200 (56.0)	0.80 (0.37-1.71)	1.66 (0.62-4.42)
≥35	78 (31.0)	145 (40.6)	1.26 (1.02-1.55)	1.61 (0.52-4.87)
Husbands level of education				
Not educated	66 (26.2)	85 (23.8)	1	1
Primary school	54 (21.4)	117 (32.8)	1.68 (1.07-2.65)	2.15 (1.12-4.11)
Secondary	59 (23.4)	80 (22.4)	1.05 (0.66-1.68)	1.38 (0.65-2.94)
Collage/University	73 (29.0)	75 (21.0)	0.798 (0.506-1.258)	1.40 (0.53-3.68)
Age difference in years				
< 5 years	67 (26.6)	47 (12.6)	1	1
≥5 years	185 (73.4)	312 (87.4)	0.41 (0.26-0.61)	1.78 (0.49-.26)
Residence				
Urban	124 (49.2)	164 (45.9)	1	1
Rural	128 (50.8)	193 (54.1)	0.877 (0.635-1.212)	1.20 (0.62-2.33)
Should male attend ANC?				
Yes	244 (47.4)	271 (52.6)	1	1
No	8 (8.5)	86 (91.5)	9.62 (4.45-20.81)	10.25 (4.47-22.3)
Women's occupation				
House wife	141 (56.0)	246 (68.9)	1	1
Employed	44 (17.5)	43 (12.0)	0.403 (0.113-1.437)	0.62 (0.29-1.35)
Merchant	34 (13.5)	37 (10.4)	0.226 (0.060-0.848)	0.59 (0.31-1.14)
Farming	30 (11.9)	18 (5.0)	0.251 (0.066-0.958)	0.23 (0.11-.51)
Others	3 (11.9)	13 (5.0)	0.138 (0.04-0.55)	1.78 (0.33-9.74)
Means of transport				
On Foot	118 (46.8)	197 (55.2)	1	
Animal/Cart	56 (22.2)	86 (24.1)	1.76 (1.19-2.60)	1.06 (0.63-1.77)
Car	78 (31.0)	74 (20.7)	1.62 (1.02-2.57)	0.75 (0.45-1.24)
Previous ANC attendance				
Yes	201 (79.8)	293 (82.1)	1	
No	51 (20.2)	64 (17.9)	0.86 (0.57-1.31)	0.49 (0.26-0.92)
Husband accompany in previous delivery				
Yes	235 (93.3)	310 (86.8)	1	
No	17 (6.7)	47 (13.2)	0.477 (0.27-0.85)	1.84 (0.91-3.71)

education of better understanding of the complications associated with unskilled delivery. Education also enables men to discard the negative attitudes and cultural beliefs.

The study has limitations since it relied on mothers self-

reporting of their male partners' attendance during ANC which may be under- or over-reported. In addition, cross-sectional data was used and therefore causality and direction of results cannot be determined; longitudinal analysis may provide additional insight into male partner attendance during ANC and investigate all factors that may be associated with male partner involvement in ANC in future studies.

Implications for practice

As earlier shown and mentioned by different literatures understanding level and factors of male attendance during their partners' ANC visits are important to fill gaps and set strategies to boat male participation in maternal health services. The result of the current study reflects the usefulness of promoting male partners participation during ANC and reducing factors that hinder them in the studied health care settings. As male attendances during ANC increases, women will be supported to have full ANC visits so that pregnancy related maternal morbidity and mortality can be reduced.

Conclusions

Despite the fact that male partners' attendance in the maternal ANC service is increasing, it remains low in Ethiopia. Furthermore, being older, farmer, age difference of more than five years, previous ANC attendance, and husband attendance in previous delivery increase the likelihood of male partners non-attendance at their partners ANC visit. Health providers and other stakeholders need to focus on educating men on their shared responsibility in ANC. Educating women with their partners when they come to ANC could improve male attendance in future ANC visit.

CONFLICT OF INTERESTS

The authors have not declared any conflict of interests.

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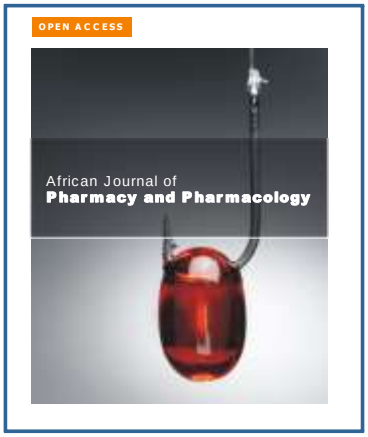

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