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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).

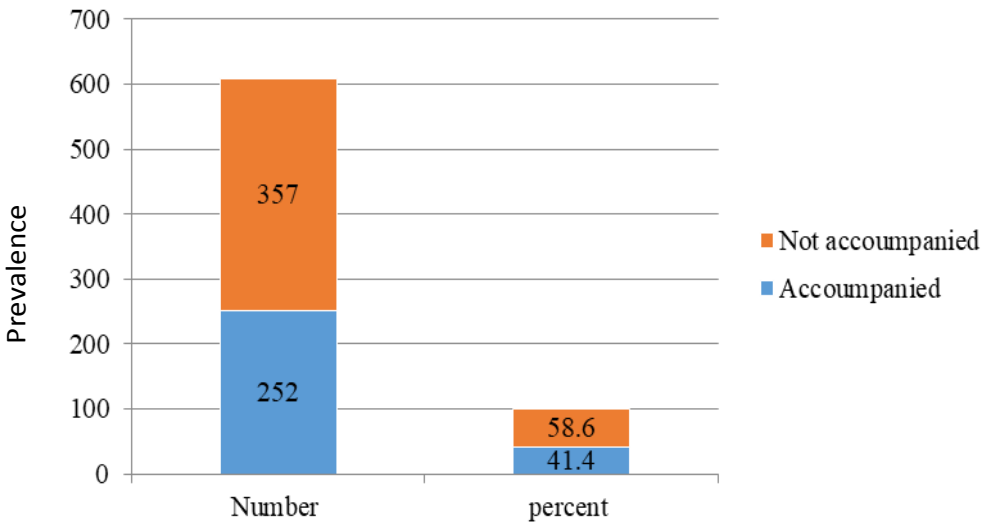

Figure 1. Prevalence of male attendance at their partners' antenatal visits among antenatal care attendees in Bale Zone, South East Ethiopia, 2017.

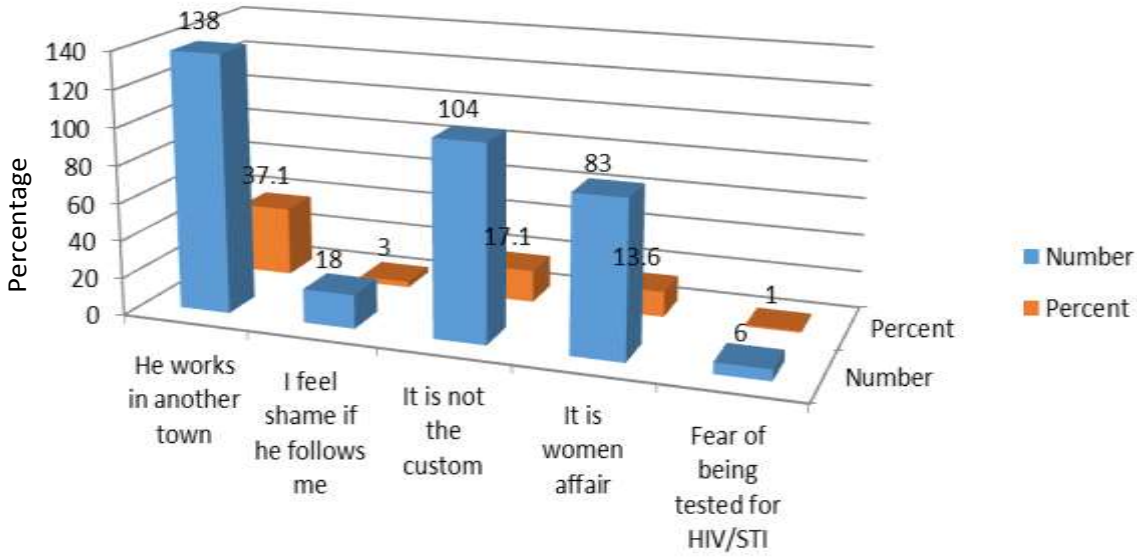

Figure 2. Reason of husband not attending at their partners' antenatal visits among antenatal care attendees in Bale Zone, South East Ethiopia, 2017.

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).

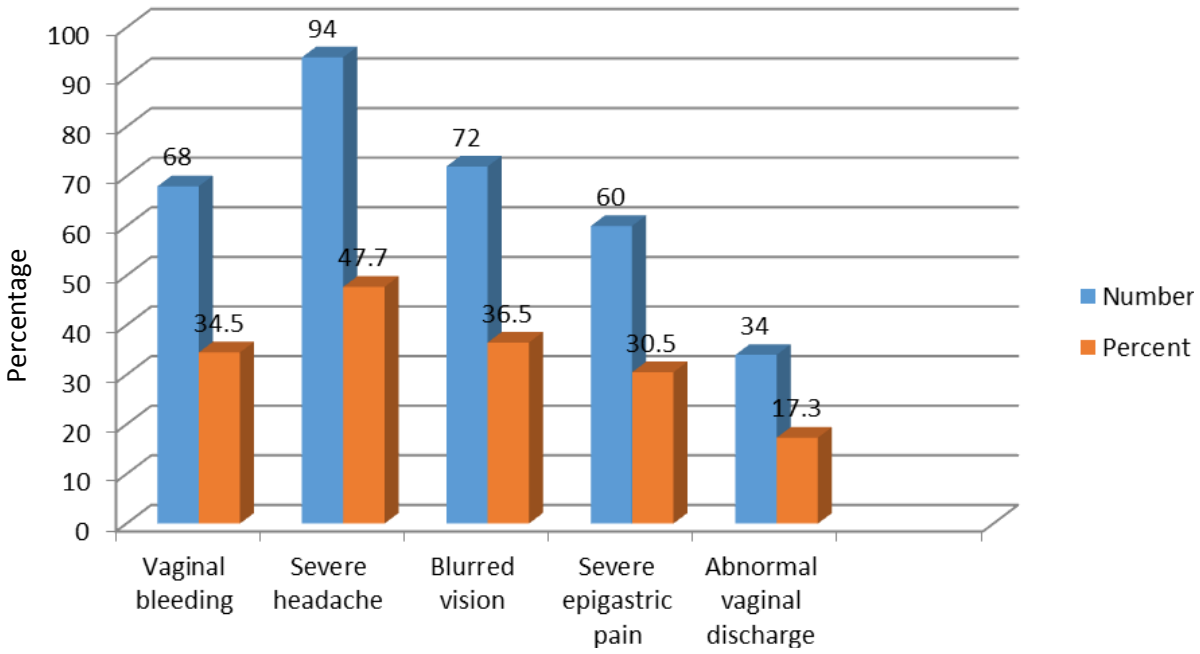

Figure 3. Types of health problem faced during pregnancy among ANC attendees in Bale Zone Health facilities, 2017.

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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