

Prevalence of Unplanned Pregnancy and Associated Factors among Mothers Attending Antenatal Care at Shashemane District Public Hospital, Oromia Region, Ethiopia: A Cross-Sectional Study

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ABSTRACT

Introduction: Unplanned pregnancy is an important public health problem both in developing and developed world, because of its association with adverse social and health outcome for mothers, children and family as whole. The aim of this study was to assess the prevalence and associated factors of unplanned pregnancy among antenatal care attendants in Shashemane public hospitals, west Arsi zone in Oromia region.

Methods: Institution-based cross sectional study design was employed on 380 pregnant women who came for antenatal care visit in Shashemane referral hospital and Melkaoda hospital from Mar 25- April 22/2019 G.C. The study participants were selected using systematic random sampling method and semi structured questionnaire was used to collect the data. The collected data were entered into Epi-data version 3.1 and exported to Statistical Package for Social Science version 22. Both bivariate and multivariable logistic regression analysis were performed to identify associated factors. P values <0.05 with 95% confidence level were used to declare statistical significance.

Result: The prevalence of unplanned pregnancy was 31.1%. Most of the respondents (57%) were found to have poor knowledge towards family planning. Predictor like parity of three and above and having poor knowledge towards general use of family planning were found to be positively associated with unplanned pregnancy as evidenced by statistical result of [AOR=9.7 (95%CI):(2.0, 47.7)] and [AOR=2.85 (95%CI):(1.54, 5.3)] respectively. Being rural in residence [AOR =0.27 (95%CI) :(0.15, 0.5)] and husbands educational level of primary and above [AOR=0.34 (95%CI): (0.16, 0.73)] were found to be protective factors for unplanned pregnancy.

Conclusion: According to this study the prevalence of unplanned pregnancy was 31.1%. Maternal age group of 35-45, rural residence, multiparity, and having poor knowledge towards general use FP are significantly associated with unplanned pregnancy.

Keywords: Unplanned, Pregnancy, Antenatal Care, Ethiopia

INTRODUCTION

Unplanned pregnancies are a pregnancy that is mistimed or unwanted at the time of conception. Unintended pregnancies and unplanned births can have serious health, economic and social consequences for women, their children and families [1]. It is predispose women to maternal deaths and illness mainly through unsafe abortion and poor maternity care, and also it causes adverse social and health outcome for mother, children and family as whole [2].

There are 2 types of unplanned pregnancies; first, the pregnancy which happens sooner than intended pregnancy time called

mistimed pregnancy. And the second type which is unintended pregnancy, when a woman has no decision to have a baby in the future [3].

Unplanned pregnancy is a global social and health challenge. Globally it is estimated that there are 87 million cases of unplanned pregnancies annually of which 46 million cases resort to induced abortion

Unplanned pregnancy is a worldwide problem that affects women, their families, society and their nation. A complex set of social and psychological factor puts women at risk for unplanned pregnancy. Abortion is a frequent consequence of unplanned pregnancy and

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in the developing countries can result in serious long-term negative health effects including infertility and maternal death [4,5].

A study in Pakistan showed that age < 20 years ,being illiterate , living in a rural setting , having a pregnancy interval of = < 12 months, having a parity of >2, having no knowledge about contraceptive methods and never use of contraceptive methods remained significantly associated with unintended pregnancy [6].

In most developing countries, about 20%-60% of married women or about 120 million women that need to avoid pregnancy become pregnant [7].

According to the study conducted in Zambia, 61.6% of participants had an unplanned pregnancy and 47.7% had a terminated pregnancy [8]. The study done in Kenya found that 24% of all the women had unintended pregnancy [9]. According to the Ethiopian Demographic Health Survey about 25 % of total last pregnancy was unintended [10].

The findings of the study conducted in Gelamso, Ethiopia showed that 27.1 % of participants were unintended pregnancies, of which 21.9% were mistimed [11]. Another study done in Addis Ababa, Ethiopia found that 36% of the pregnant women attending ANC in Health center had unintended pregnancy experience [12].

A study done in Harar town, southeast Ethiopia showed that from a total of 983 females aged 15–49 years who were interviewed, 225(33.3%) reported that their most recent pregnancies were unintended [13].

In most African countries, abortion remain both un authorized and unsafe and leading cause of maternal death accounted for a global average of 1.3% of pregnancy related fatalities [14]. Although, several international declaration where passed on the problem, many in sub Saharan Africa are suffering from un wanted pregnancy [15].

Therefore, the purpose of this study is to determine the prevalence of unplanned pregnancies and the associated factors among mothers attending ante-natal care (ANC) unit at Shashemane public hospitals to provide data for possible intervention. The outcome of this study can add clinical information that will serve as essential input for policy makers to design proper strategies to improve reproductive health status of reproductive age women.

METHODS AND MATERIALS

Study Area and Period

Shashemane town is a separate woreda in west Arisi zone, Oromia region, Ethiopia. The town is about 150 miles (240 km) from Addis Ababa. According to 2007 national census report the town has a total population of 100,454; out of which 49,800 were women. It consists of peoples with different languages, more than 18 ethnic

groups (like; Oromo, Gurage, Tigray, wolyita, Kenbata, Hadiya, Sidama and etc.). The health institutions in the town had reached to 74 in number from one health center in 1996. Among this the hospitals are two in numbers which serves at district and referral levels. The town also has 3 health centers, and the rest are health posts, higher clinics and pharmacies. Currently there are many services available in Shashemene referral hospital and Melkaoda hospital including (Antenatal care, EPI, Family planning, ART services, Abortion care, delivery services, OPD, pediatric ward, medical ward, surgical ward, Gyne ward, post op, dental clinic and psychiatry unit). The study was conducted in Shashemane town public hospitals from Mar 25- April 22/2019 G.C.

Study Design

An institution-based cross sectional study was employed to determine the prevalence of unplanned pregnancies and the associated factors among mothers attending ante-natal care unit at Shashemane public hospitals.

Populations

Source Population

The source population was all women attending ANC at Shashemene referral hospital & Melkaoda while the study population was all randomly selected pregnant women who were attending ANC follow up at Shashemene referral hospital & Melkaoda hospital during the study period (Figure 1).

Inclusion Criteria and Exclusion criteria

All pregnant women who were attending ANC during data collection period were included in the study and those who were ill, and unable to communicate during data collection period were excluded from the study (Figure 2).

Sample size

The sample size was calculated for each specific objective and the maximum sample size was selected. The sample size was determined using single population proportion formula $n = (Z_{\alpha/2})^2 p (1-p) / d$ with the assumption of the prevalence rates of unplanned pregnancy 34% taken from pervious study [16]. By considering 95% confidence interval and a maximum marginal error of 5%, and 10% non-response rate was used to determine the final sample size of 380.

Sampling Technique

The sample was selected using systematic random sampling technique from the mothers who come for ANC follow up from March 25 to April 22 / 2019 G.C. A one month client flow at Shashemene referral hospital and Melkaoda hospital was 440 and 380 respectively. By considering this, the sample size was proportionally allocated for each hospital, 204 for Shashemene

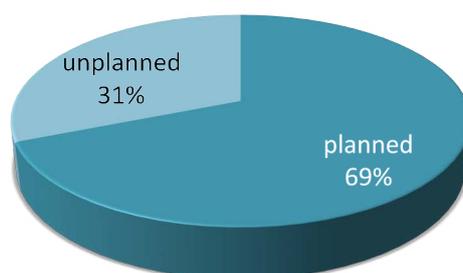


Figure 1: Prevalence of unplanned pregnancy among selected mothers attending ANC follow up at Shashemane public hospitals April 2019.

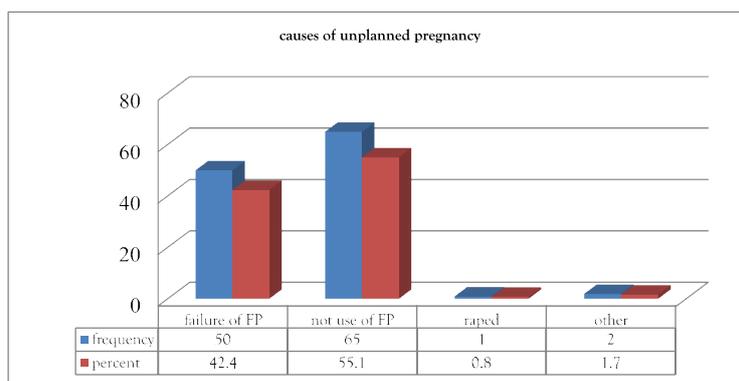


Figure 2: Cause of unplanned pregnancy among mothers with unplanned pregnancy at Shashemane public hospital April 2019.

referral hospital and, 176 for Melkaoda hospital. Data was collected in ever 2nd interval until the desired sample was achieved for each hospital.

Study Variables

Dependent Variable

Unplanned Pregnancy

In Dependent Variable

Socio demographic factors: Age, Marital status, Educational status, Ethnicity, Religion, Occupation, Residence, and Monthly income

Family planning related factors: Heard about FP, and history of FP utilization

Obstetric factors: History of abortion, History of unwanted pregnancy, Parity, and Gravidity

Operational Definitions

Unplanned pregnancy: is the occurrence of pregnancy while women want to post-pone or avoid it (1).

Unwanted pregnancies: describes pregnancy that are not desired now, later or any time in the future (1).

Data collection tools and procedures

Data were collected using standardized and pre-tested questionnaire by face to face interviewing pregnant mothers. The questionnaire was adapted from relevant literature and modified to the local context in such a way that all the variables to be assessed were included. Two midwives were recruited were recruited as interviewers and two BSc holder midwives supervised the data collection process (Figure 3).

Data Quality Control

The questionnaire was pre-tested on 10% of the sample size at Awasho health center which was not included in main the study. Data collectors and supervisors were trained for two days concerning the questionnaire, interviewing technique, and data collection procedures. The principal investigator along with supervisors conducted a day-to-day on-site supervision and reviewing to maintain data quality (Figure 4).

Data Processing and Analysis

The collected data was checked for completeness, coded, and entered into EPI data version 3.1, and SPSS version 22 statistical package software was used to analyze the data. Summery statistics such as percentage and frequency was computed, table and

graphical technique was used. Bivariable analysis, COR with 95% CI, was used to see the association between each independent variable and the outcome variable by using binary logistic regression. AOR with 95% CI was estimated to identify the factors associated with unplanned pregnancy using multivariable logistic regression analysis. A p-value of ≤ 0.05 was used to declare statistical significance (Figure 5).

Ethical Considerations

Ethical clearance was obtained from the Institutional Review Board (IRB) of Arba Minch University, college of medicine & health science. Permission letter was submitted to each hospital. Written consent was obtained from the study participants after explaining the purpose of study. Privacy and confidentiality was ensured throughout the study.

RESULTS

Socio Demographic Characteristics of Respondent

A total of 380 women were involved in the study forming a response rate of 100. The mean age of the respondent was 25.02 with (SD \pm 5.213). 245(64.5%) of the participant were Muslim in religion and 311 (81.8%) were Oromo in ethnicity. Majority 366 (96.3%) of the women were married and above the half 281(73.9%) of the respondents were housewives. Majority 262 (69%) of the respondents had a monthly family income<3000 Ethiopian birr (Table 1 and Figure 6).

Obstetrics Characteristics

Out of 380 total respondents 177 (46.6%) have gravidity of three and above and 270 (71.1%) are multipara. Out of total 380 respondents 78 (20.5%) have history of unwanted pregnancy and 262(68.9%) of current pregnancy was planned while 118 (31.1%) was unplanned. Out of total 118 respondents having Unplanned pregnancy 65 (55.1%) was due to not using of family planning and 50(42.4%) as result of failure of family planning (Table 2).

Health Service Related Factors

Among the total 380 respondents 235(61.8%) has history of institutional delivery and 345(90.8%) have history of ANC follow up. Among the total of 380 respondents majority 285(75%) have two and above current number of ANC follow up (Table 3).

Knowledge and Source of Contraceptives

Among the total 380 respondents 350 (92.1%) have heard about contraceptives. From those who heard contraceptive methods 171(48.9%) heard from health institutions and 44(12.6%)

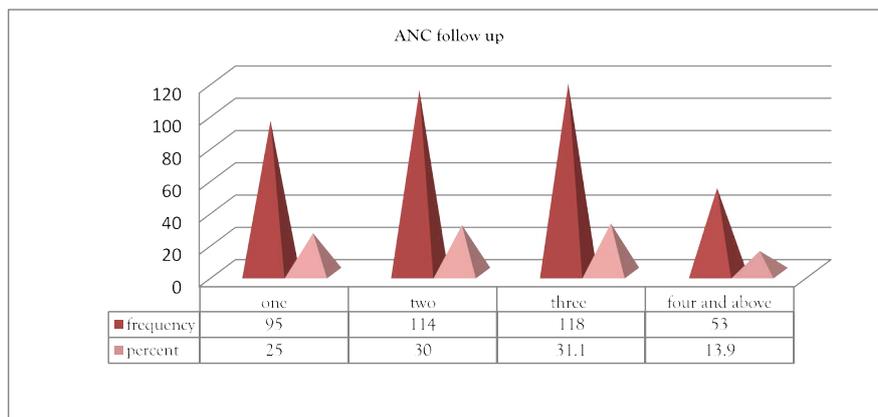


Figure 3: Current number of ANC follow up among selected mothers attending ANC follow up at Shashemane public hospitals April 2019.

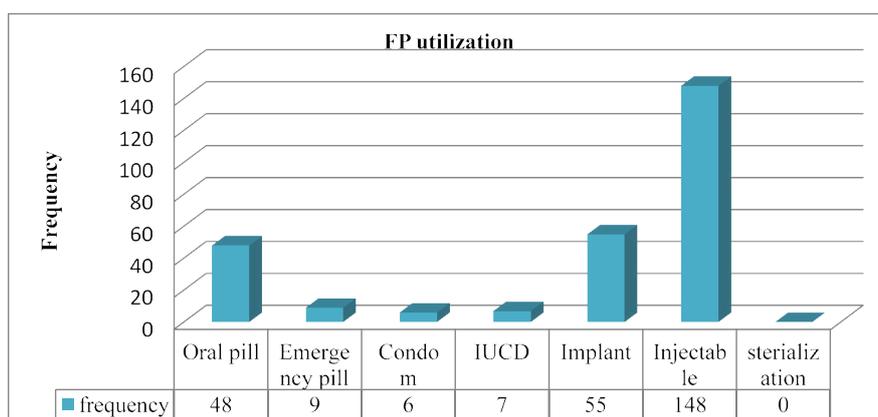


Figure 4: Type of family planning methods used among selected mothers who has history of using FP attending ANC follow up at Shashemane public hospitals April 2019.

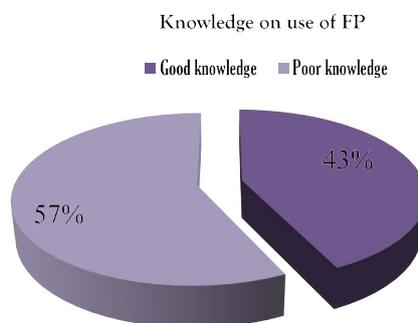


Figure 5: Respondents knowledge on general use of family planning among selected mothers attending ANC follow up at Shashemane public hospitals April 2019.

heard from their family. Among those who heard contraceptives (350) respondents 316(90.3%), 261(74.6%), and 253(72.3%) knows about injectable, oral pill, and implants respectively. only 46(13.1%) knows about sterilization/permanent method (Table 4).

Utilization of Family Planning

Among the total 380 participants 201(52.9%) have history of using contraceptives and 320(84.2%) have future intention to use family planning. From those who have history of using contraceptives majority of them 148(73.6%) uses injectable and none of them use permanent method. Among the non-users 98(54.7%) do not use due to need of the child and 48(26.8%) due to fear of side effect and because of religion (Table 5).

Knowledge on Use of Contraceptives

Among the total 380 participants 347 (91.3%) believe that

contraceptives help couples to become responsible parents (Table 6). From the participants 261 (68.7%) knows that the general use of contraceptives was to prevent unwanted pregnancy and for child spacing similarly (Table 7).

Factors Associated With Unplanned Pregnancy

According to the result of bivariate logistic regression analysis the variables which was significantly associated with the prevalence of unplanned pregnancy were mothers age class of 25-34, maternal gravidity of greater than one & parity greater than two, having history of unwanted pregnancy, having history of still birth, not having history of institutional delivery, not using FP and poor knowledge on general use of FP. The respondents of age group of 25-34 are 2.15 times more likely to develop unplanned pregnancy than age group less than 25 [COR=2.15, 95% CI (1.36-3.41)]. Those mothers having gravidity of greater than one are 2.9 times

Table 1: Distribution of pregnant mother by their socio demographic characteristics at Shashemane public hospitals ANC unit, west Arsi zone, oromia region, Ethiopia, April 2019 G.C.(n=380).

Characteristics	Classifications	Number	Percentage
Age group (in year)	15-19	58	15.3
	20-24	116	30.5
	25-29	126	33.2
	30-34	58	15.3
	35-39	20	5.3
	40-44	1	0.3
	45-49	1	0.3
Marital status	Married	366	96.3
	Divorced	7	1.8
	Widowed	5	1.3
	Single	2	0.5
Religion	Orthodox	63	16.6
	Muslim	245	64.5
	Protestant	68	17.9
	Others	4	1.1
Ethnicity	Oromo	311	81.8
	Amhara	21	5.5
	Sidama	5	1.3
	Walyta	18	4.7
	Others	25	6.6
Residency	Urban	219	57.6
	Rural	161	42.4
Educational level of mother	No formal education	57	15.0
	Primary (1-8)	182	47.9
	Secondary(9-12)	109	28.7
	College and above	32	8.4
Occupational status	House wife	281	73.9
	Private employee	32	8.4
	Government Employees	30	7.9
	Merchant	29	7.6
	Others	8	2.1
Families monthly income level. Median =2400 ETB	Less or equal to 2400	190	50
	Greater than 2400	190	50

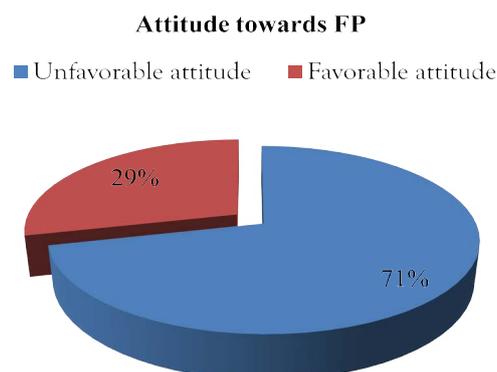
**Figure 6:** Respondents attitude towards contraceptives among selected mothers attending ANC follow up at Shashemane public hospitals April 2019.

Table 2: Obstetric characteristics of mothers in selected mothers in Shashemane public hospitals, April, 2019 (n=380).

Characteristics	Classification	No	Percent(%)
Gravidity	One	104	27.4
	Two	99	26.1
	Three and above	177	46.6
Parity	One	110	28.9
	Two	63	16.6
	Three and above	102	26.8
History of unwanted pregnancy	Yes	78	20.5
	No	302	79.5
History of abortion	Yes	65	17.1
	No	315	82.9
History of stillbirth	Yes	44	11.6
	No	336	88.4

Table 3: Health service related information among selected mothers attending ANC follow up at Shashemane public hospitals April 2019 G.C (n=380).

Character	Classification	Number	Percent(%)
History of institutional delivery	Yes	235	61.8
	No	145	38.2
History of ANC follow up	Yes	345	90.8
	No	35	9.2

Table 4: Distribution of pregnant women by knowledge and practices of modern contraceptive of selected ANC attending mothers at Shashemane public hospital, Oromia region, Ethiopia April, 2019.

Characteristics	Knowledge on Contraceptives		Number	Percentage
	Classification		nunumber	Percent (%)
Have ever heard of contraceptive	Yes		350	92.1
	No		30	7.9
Source information on contraceptive methods	Health institution		171	48.9
	Family		44	12.6
	Friend		86	24.6
	Mass media		49	14.0
Which FP method they know	Oral pill	Yes	261	74.6
		No	89	25.4
	Emergency pill	Yes	62	17.7
		No	288	82.3
	Condom	Yes	189	54.0
		No	161	46.0
	IUCD	Yes	135	38.6
		No	215	61.4
	Implants	Yes	253	72.3
		No	97	27.7
	Injectable	Yes	316	90.3
		No	34	9.7
	sterilization/permanent	Yes	46	13.1
		No	304	86.9

Table 5: Utilization of family planning among selected mothers attending ANC follow up at Shashemane public hospitals April 2019.

Character	Classification	Number	Percent (%)
Have history of using family planning	Yes	201	52.9
	No	179	47.1
Do they have future intention to use FP	Yes	320	84.2
	No	60	15.8

Table 6: Reason for not using family planning among the selected mothers who does not use FP attending ANC follow up at Shashemane public hospitals April 2019.

Characteristics	Classification	Value	Frequency	Percent(%)
Reason for not using family planning	Fear of side effect	Yes	48	26.8
		No	131	73.2
	Need of other child	Yes	98	54.7
		No	81	45.3
	Because her husband do not allow	Yes	22	12.3
		No	157	87.7
	Because of religion	Yes	48	26.8
		No	131	73.2
	Other reason	Yes	32	17.9
		No	147	82.1

Table 7: Knowledge on use of contraceptives among selected mothers attending ANC follow up at Shashemane public hospitals April 2019.

Characteristics	Classification	Values	Frequency	Percent(%)
Does contraceptives help couples to become responsible parents		Yes	347	91.3
		No	33	8.7
What are general use contraceptives	Prevent unwanted pregnancy	Yes	261	68.7
		No	119	31.3
	Prevent possible maternal death	Yes	163	42.9
		No	217	57.1
	Limiting number of children	Yes	242	63.7
		No	138	36.3
Child spacing	Yes	261	68.7	
	No	119	31.3	

Table 8: Attitude of women towards contraceptive usage among selected mothers attending ANC follow up at Shashemane public hospitals April 2019.

Characteristics	Value	Frequency	Percent (%)
Do you believe that child spacing protects mother and child	Yes	352	92.6
	No	28	7.4
Do you believe that family planning is very important	Yes	359	94.5
	No	21	5.5
Modern contraceptive helps mother to regain her strength before her next baby	Yes	351	92.4
	No	29	7.6
Men should share the responsibility of family planning use	Yes	332	87.4
	No	48	12.6
Do you believe that family planning practice will not cause loss of confidence b/n couples	Yes	319	83.9
	No	61	16.1

Table 9: Factors associated with unplanned pregnancy among mothers attending ANC at Shashemane public hospitals April 2019.

Variable	Status of pregnancy			
	planned	Unplanned	COR (95% CI)	AOR (95% CI)
Age of mother				
15-24	134	40	1	1
25-34	112	72	2.15(1.36-3.41)*	0.86(0.43-1.76)
35-45	16	6	2.26(0.46-3.42)	0.2(0.057-0.8)*
	Marital status			
Married	253	113	0.6(0.13-2.7)	0.38(0.05-2.7)
Divorced	5	2	0.5(0.06-4.9)	0.9(0.06-14.1)
Others #	4	3	1	1
	Residence			
Urban	172	47	1	1
Rural	90	71	3.2(1.84-4.5)*	0.27(0.15-0.5)*

Mothers level of education				
No formal education	35	22	1.43(0.75-2.75)	1.1(0.37-3.15)
Primary	129	53	0.94(0.58-1.51)	0.88(0.44-1.8)
Secondary and above	98	43	1	1
husbands level of education				
No formal education	28	14	1.0(0.5-2.0)	0.6(0.2-2.0)
Primary	76	28	0.76(0.46-1.28)	0.34(0.16-0.7)*
Secondary and above	158	76	1	1
Mothers occupation				
House wife	192	89	1.1(0.8-1.85)	1.0(0.5-2.1)
Other##	70	29	1	1
Family monthly income Median=2400 ETB				
Less or equal to 2400	127	63	1.22(0.78-1.88)	1.6(0.86-3.0)
Greater than 2400	135	55	1	1
Gravidity				
One	91	13	1	1
Two	70	29	2.9(1.4-5.9)*	-
Three and above	101	76	5.26(2.74-10.1)*	-
Parity				
One	79	31	1	1
Two	40	23	1.46(0.76-2.8)	3.1(0.64-14.99)
Three and above	51	51	2.5(1.44-4.49)*	9.7(2.0-47.7)*
History of unwanted pregnancy				
Yes	41	37	2.46(1.5-4.1)*	1.3(0.6-2.5)
No	221	81	1	1
History of abortion				
Yes	41	24	1.38(0.78-2.4)	1.6(0.74-3.5)
No	221	94	1	1
History of still birth				
Yes	30	14	1.04(0.53-2.04)	0.87(0.36-2.1)
No	232	104	1	1
History of institutional delivery				
Yes	151	84	1	1
No	111	34	0.55(0.35-0.87)*	0.85(0.43-1.67)
History of ANC follow up				
Yes	234	111	1	1
No	28	7	0.53(0.2-1.24)	0.2(0.05-1.05)
Heard about any contraceptive(FP)				
Yes	237	113	1	1
No	25	5	0.42(0.15-1.12)	0.34(0.07-1.3)
Have history of using family planning				
Yes	129	72	1	1
No	133	46	0.62(0.4-0.96)*	1.24(0.6-2.46)
Knowledge on general use of FP				
Poor knowledge	101	62	1.76(1.14-2.7)*	2.85(1.54-5.3)*
Good knowledge	161	56	1	1
Attitude towards contraceptive use				
Unfavorable attitude	184	87	1.2(0.73-1.90)	0.7(0.35-1.4)
Favorable attitude	78	31	1	1

more likely than primi-gravida [COR= 2.9, 95% CI (1.4-5.9)]. Similarly mothers having parity of three and above are 2.5 times more likely than primipara [COR=2.5, 95% CI (1.44-4.49)]. Mothers who have no history of using FP are also at risk 38% times less likely for unplanned pregnancy than those who have history of using FP [COR= 0.62, 95% CI (0.4-0.96)] (Table 8).

Multivariable logistic regression analysis also showed that mothers who live in rural are 73% less likely for unplanned pregnancy than those who live in urban [AOR= 0.27, 95% CI (0.15-0.5)]. Those having parity of three and above are 9.7 times more likely for unplanned pregnancy than who have parity less than three [AOR= 10.0, 95% CI (2.0-47.7)]. Additionally those who have poor knowledge towards general use of family planning are 2.85 times more likely for un planned pregnancy than those having good knowledge [AOR= 2.85, 95% CI (1.54-5.3)] (Table 9).

DISCUSSION

This study shows the magnitude of unplanned pregnancy and associated factor with it, such as socio demographic characteristics, obstetric factors, Knowledge and ever use of contraceptive method, and maternal attitude towards contraceptive use.

The prevalence of unplanned pregnancy in this study is 31.1% at 95% CI of (27.1, 33.5), while (68.9%) planned for their current pregnancy. This result is in contrast to the currently increasing awareness of modern contraceptive methods, availability of the services and contraceptive prevalence rate. The most frequent reason mentioned by the participants in this study for failure to avoid unplanned pregnancy were failure of family planning method, and not using family planning. Failure of family planning was reported by (42.4%), this was much higher than result of study conducted in Hosanna (31.3%), this might be due to small sample size of this study.

Even if the prevalence is high (31.1%) it is lower than the research done in Kenya in 2010 on prevalence of unplanned pregnancy (50%), Institution based cross sectional study which done in Hawassa city public hospitals in 2016, the prevalence of unplanned pregnancy (33.7%) and study conducted on prevalence of unplanned pregnancy in Hosanna town southern part of Ethiopia in 2012, out of the total pregnancies, which is 34%. This may be due to a timely increase in awareness and utilizing reproductive health care service.

According to our study with respect to the socio-demographic factors, women at age class of 35-45 had experienced unplanned pregnancy. These findings could be explained by young women's desire to have some years of inter-pregnancy interval, but due to unmet need for contraceptives, they usually end up with mistimed pregnancies. This is different from result of a research done in Kenya which shows that the prevalence of unplanned pregnancy is high in 15-19 age class that is 50% [14-17].

Place of residence has mixed effects on unintended pregnancy and some of the previous studies found that women from urban areas are at higher risk of unintended pregnancy, while other some studies found that women from rural area are more at risk of unintended pregnancy. This could be due to different settings or preferences for contraceptive use in rural and urban areas. Moreover, there might be some interaction between place of residence and contraceptive usage, which add together and predict the risk of unintended pregnancy; nevertheless, no studies have assessed the interaction between these two variables. In this

study place of residence has negative association with unplanned pregnancy as evidenced by statistical result [AOR =0.27 (95%CI) :(0.15, 0.5)]. This is similar with research done in Hosanna town southern part of Ethiopia in 2011 [18].

Gravidity and parity were found to be proportional to unplanned pregnancy. These variables are closely related with each other and once the women have enough children, the intention for the next pregnancy decreases. Having parity of three and above has 2.5 times more likely for unplanned pregnancy [AOR=9.7, 95% CI (2.0-47.7)]. This is similar with the research done in hosanna town.

Knowledge about contraceptives was suggested to be negatively associated with unplanned pregnancy. Various studies found that women who have more knowledge about contraceptives are less likely to experience unintended pregnancy, as compared to those who do not have adequate knowledge about these methods. In this study from 118 women who experienced unplanned pregnancy 62 (52.5%) have poor knowledge on FP, and are 2.85 times more likely for unplanned pregnancy than those having good knowledge [AOR=2.85, 95% CI (1.54-5.30)]. From this we recognize that if a women has higher knowledge of family planning method, she is more likely to be aware of the benefits of those methods which in turn will motivate her to use the family planning method and be less likely to have unplanned pregnancy. This is consistent with Study conducted in Gelemso showing that having no awareness on contraceptives can increase the magnitude of unplanned pregnancy [10]. Using of descriptive cross-sectional studies, which might not have shown the causal relations between various determinants and unplanned pregnancy and Social desirability bias.

CONCLUSION

According to this study the prevalence of unplanned pregnancy was (31.1%). The prevalence was improved compared to the research done in Hawassa city (34%). In this study maternal age group of 35-45, rural residence, multiparty and having poor knowledge towards general use FP are significantly associated with the prevalence of unplanned pregnancy.

Multiple factors can predict unplanned pregnancy, and these findings have significant policy implications. Policymakers and healthcare providers can benefit from the evidence on determinants of unplanned pregnancy to design and implement policies and programs that can support couples to have their desired number of children, without facing unnecessary threats to their health. Furthermore, more studies are needed to be done in future to assess the available cost-effective interventions for reducing unplanned pregnancy and ultimately, to improve women's and children's health.

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Authors' contributions

GG: Conceived and designed the study, supervised the data collection, performed the analysis, interpretation of data, and drafted the manuscript. NS: Assisted in designing the study, data interpretation, drafted, and critically reviewed the manuscript.

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Competing interests

The authors declare that they have no competing interests.

REFERENCES

1. Gipson JD, Koenig MA, Hindin MJ. The effects of unintended pregnancy on infant, child, and parental health: a review of the literature. *Studies in Family Planning*. 2008;39(1):18-38.
2. Belayneh Y. The Prevalence of unplanned pregnancy and associated factors among pregnant women attending the Antenatal care unit at Itang health center.
3. Pakseresht S, Rasekh P, Leili EK. Physical health and maternal-fetal attachment among women: Planned versus unplanned pregnancy. *Int J Womens Health Repro Sci*. 2018;6(3):335-41.
4. Singh A, Singh A, Thapa S. Adverse consequences of unintended pregnancy for maternal and child health in Nepal. *Asia Pacific J Pub Health*. 2015;27(2):NP1481-91.
5. Singh S, Sedgh G, Hussain R. Unintended pregnancy: worldwide levels, trends, and outcomes. *Studies in family planning*. 2010;41(4):241-50.
6. Teshome FT, Gebremariam A, Nigussie A. Prevalence of unintended pregnancy and associated factors among married pregnant women in Ganji woreda, west Wollega Oromia region, Ethiopia.
7. World health statistics WHO. Unsafe abortion: global and regional estimates of the incidence of unsafe abortion and associated mortality, 6th Edition. Department of Reproductive Health and Research, WHO. 2011.
8. Chanda MM, Ortblad KF, Mwale M, Chongo S, Kanchele C, Kamungoma N, et al. Contraceptive use and unplanned pregnancy among female sex workers in Zambia. *Contraception*. 2017 ;96(3):196-202.
9. Ikamari L, Izugbara C, Ochako R. Prevalence and determinants of unintended pregnancy among women in Nairobi, Kenya. *Bmc Pregnancy and Childbirth*. 201313(1):1-9.
10. Ethiopian demographic health survey: teenage pregnancy and motherhood, Ethiopia, CSA, (2016)
11. Mohammed F, Musa A and Amano A. Prevalence and determinants of unintended pregnancy among pregnant woman attending ANC at Gelemso General Hospital, Oromiya Region East Ethiopia: a facility based cross-sectional study. *BMC Women's Health* 2016;16:56.
12. Sisay A, Asres N, Tesfaye S. Prevalence of Unplanned Pregnancy and Factor Among Pregnant Women, Ethiopia 2018 GC. *Clin Med Res*. 2019;8(2):39.
13. Kassa N, Berhane Y, Worku A. Predictors of unintended pregnancy in Kersa, Eastern Ethiopia. *Repro Health*. 2012;9(1):1-7.
14. WHO, the incidence of unsafe abortion and associated mortality in 2000, 4th ed. Geneva WHO: 2004.
15. UN, Declaration preventable maternal mortality, Geneva Switzerland united nation: 2009
16. Hamdela B, Tilahun T. Unwanted pregnancy and associated factors among pregnant married women in Hosanna Town, Southern Ethiopia. *PloS one*. 2012;7(6):e39074.
17. Kenya National Bureau of Statistics (KNBS) and ICF Macro: *Kenya demographic and health survey, 2008–09*. Calverton, Maryland: KNBS and ICF Macro; 2010.
18. Sosina M. , Meron F. ,Hiwot A. ,Gzahegn B. ,Asres B. Prevalence of unplanned pregnancy and Associated factors among mothers attending ANC at Hawassa city public hospital. ,2017.