Journal of Science and Inclusive Development Vol. 4, No. 1, DOI: 10.20372/jsid/2021-104

Magnitude of unintended pregnancy and associated factors among pregnant women attending antenatal care at Durame Maternal and Child Health Center, Southern Ethiopia

Getachew Asmare[1*] and Kelemu Abebe [2]

[1]Department of Reproductive Health and Nutrition, School of Public Health, College of Health Science and Medicine, Wolaita Sodo University, Wolaita Sodo, Ethiopia

[2]Department of Midwifery, College of Health Science and Medicine, Wolaita Sodo University, Wolaita Sodo, Ethiopia

*Corresponding author email: gasmare35@gmail.com; https://orcid.org/0000-0001-8469-7754

Received: 01 June 2021; Revised: 01 November 2021; Accepted: 03 November 2021; Published: 26 November 2021

Abstract

Unintended pregnancy is the major sexual and reproductive health problem which carries a higher risk of morbidity and mortality for women, often due to unsafe abortion. Even though family planning services are effective and available than ever before, unintended pregnancy and unsafe abortion are the major public health problems in the study area. Therefore, this study aims to assess the magnitude of unintended pregnancy and its associated factors among pregnant women attending antenatal care at Durame Maternal and Child Health center, Southern Ethiopia. Data were collected through face-to-face interviews with 385 participants. The results revealed that among the total participants, 26.8% with 95% CI (0.229-0.307) had unintended pregnancies. Mothers who were not knowledgeable about family planning methods (AOR=2.541, 95% CI=1.953, 6.101), family size of six or more (AOR=2.8, 95% CI=1.19, 6.60), a history of greater than six pregnancies (AOR=7.323, 95% CI=3.987, 10.056), and mothers who had a history of 3-4 pregnancies (AOR=3.210, 95% CI=1.678, 4.721) were among significantly associated factors with an unintended pregnancy. The magnitude of unintended pregnancy in Durame town was optimal compared to other studies. The number of pregnancies, knowledge about family planning methods, and family size were among the significantly associated factors with an unintended pregnancy. Therefore, special attention could be taken to these high-risk groups in terms of increasing accessibility and availability of maternal health services and counselling. By doing this, the chance of unintended pregnancy could be reduced.

Keywords: Unwanted pregnancy, associated factors, Ethiopia

Introduction

Unintended pregnancy is a pregnancy that is either unintended or mistimed. The unintended pregnancy occurred when no more children were desired. Alternatively, the mistimed pregnancy is the unintended pregnancy that occurred earlier than desired. The concept of unintended pregnancy helps in understanding the fertility of populations and the unmet need for contraception also known as birth control, and family planning. Most unintended pregnancies result from not using contraception or from not using it consistently or correctly (Mosher et al., 2012).

Unintended pregnancy is a public health problem that predisposes women to maternal deaths and illnesses mainly through unsafe abortions and poor maternity care. It can have adverse physical, mental, social, and economic outcomes. Illegal abortions and associated complications often follow unintended pregnancies and claim the lives of many women in developing countries (Yanikkerem and Piro, 2013).

Worldwide, an estimated 44% of pregnancies occurred in 2010–14 were unintended. The unintended pregnancy rate declined by 30% in developed regions, from 64 per 1000 women aged 15–44 years in 1990–94 to 45 in 2010–14. In developing regions, the unintended pregnancy rate fell by 16%, from 77 per 1000 women aged 15–44 years. Whereas the decline in the unintended pregnancy rate in developed regions coincided with a declining abortion rate, the decline in developing regions coincided with a declining unintended birth rate. In 2010–14, 59% of unintended pregnancies ended in abortion in developed regions, as did 55% of unintended pregnancies in developing regions (Bearak et al., 2020).

Unintended pregnancy is a very common experience among adolescence and they have a higher risk than any other age group. In most developed countries as well as in Latin America, the Caribbean, and some parts of sub-Saharan Africa, the majority of pregnancies in adolescents occur outside of marriage and are often unintended and unintended (WHO, 2011).

Poor educational status, lack of access to health services and health education, poor economic status, single in marital status, peer pressure, sexual violence, and family planning failure are among the predisposing factors exposing to unintended pregnancy (Bahk et al., 2015).

Unintended pregnancy is one of the most evident for the violation of women's sexual and reproductive rights in developing countries. Despite the availability of highly effective methods of contraception, different studies in Ethiopia revealed that there is a high level of unintended pregnancy (Kumneger et al., 2021; Habtamu et al., 2020; Gebrehiwot et al.., 2019; Teshale and

Journal of Science and Inclusive Development Vol. 4, No. 1, DOI: 10.20372/jsid/2021-104

Tesema, 2020; Beyene, 2019; Goshu and Yitayew, 2019; Tsegaye et al., 2018; Workineh et al., 2018; Kassahun et al. 2017; Mulat et al., 2017; CSA, 2012).

Unintended pregnancy is one of the most common public health issues. Thus, it is a major sexual and reproductive health problem, which carries a higher risk of morbidity and mortality for women. Even though family planning services are effective and available than ever before, unintended pregnancy and unsafe abortion are the major public health problems in the study area. Therefore, this study aims to assess the magnitude of unintended pregnancy and its associated factors among pregnant women attending Antenatal Care at Durame Maternal and Child Health center, Southern Ethiopia.

Methods and materials

Setting, subjects, and study design

Durame town is found in Kembata Tembaro Zone of Southern Nation, Nationalities, and Peoples' Region (SNNPR). It is located 270 km south of Addis Ababa, the capital of Ethiopia, and 112km southwest of Hawassa (SNNPR regional city). The total population in the town was 24,472 (12,173 male and 12,299 female) (Durame Town Health Office, 2020). In Durame there are three health centers, one hospital, and four private clinics. The catchment area of the hospital is Kembata Tembaro Zone and that of the three health centers is Durame town. Durame General Hospital is the only public hospital serving as a referral hospital for Kembata Tembaro Zone.

An institution-based cross-sectional study design was conducted on the magnitude of unintended pregnancy and its associated factors among pregnant women attending antenatal care at Durame Maternal and Child Health center from April 01-30, 2020.

Sample size and sampling procedure

The required sample size was calculated by using the single population proportion formula with an assumption of 95% confidence interval (CI), 5% margin of error, the proportion of unintended pregnancy in Jimma zonal hospital (39%) (Dugassa and Tollessa, 2019).

Therefore, using the formula single population proportion,

$$\boldsymbol{N = \frac{z^2 \times p(1-p)}{w^2}} \quad (1)$$

$$\boldsymbol{N = \frac{(1.96)^2 \times 0.39(1-0.39)}{(0.05)^2} = 366}$$

Adding a 5% non-response rate, the final sample size was 385.

A systematic random sampling technique was used to select pregnant women who attended antenatal care services at Durame Maternal and Child Health center. The first three months' Antenatal Care (ANC) registration book review was conducted. Based on the review, 729 pregnant mothers who attended ANC service for the last three months were selected before data collection time. Then, K was calculated, which was two. The first mother was selected by a simple random sampling technique with a lottery method. Finally, study participants were selected for every other mother who attended ANC service at the health center during data collection.

Data collection procedure

A pre-tested and structured questionnaire was administered face-to-face. The questionnaire was prepared in the English language then translated into the local language, and back to English by language experts to check for its consistency. Two data collectors who had a diploma in midwifery and one supervisor who was a health officer having a bachelor's degree were recruited to participate in data collection based on set criteria and trained for data collection and supervision. Measures were taken to reduce social desirability bias included articulating the questions well, so that to get a result as accurate as possible; mitigating this by conducting the interviews in private spaces to engender trust and confidence among respondents, thereby ensuring reporting accuracy; and involving female data collectors as it is common in the community to discuss the reproductive issue with the same gender.

Quality control measures

Data quality was controlled through conducting a pre-test on 5 % of the sample size before actual data collection was made. It was made to ensure that the respondents can be able to understand the wording, skip the order of the questions sensibly. Findings from pretesting of the questionnaires were part of the training and the concerns identified were clarified. The correction of the questionnaire was done after pre-testing. Training was given to data collectors and supervisors. The completeness of the questionnaire was also checked before data entry.

Operational definition

Comprehensive knowledge about family planning methods was computed from summing up all relevant six knowledge-related questions about family planning methods. The correct answer for each item was scored “1” and the incorrect answer was scored "0." Accordingly, respondents who

Journal of Science and Inclusive Development Vol. 4, No. 1, DOI: 10.20372/jsid/2021-104

scored greater than or equal to the mean value of the sum of knowledge assessment questions were thought as knowledgeable, and respondents who answered less than the mean value of the sum of knowledge assessment questions were thought as not knowledgeable.

Unintended pregnancy was assessed by one item with yes, no response. The correct answer for the item was scored "1" and the incorrect answer was scored "0."

Data were edited, cleaned, coded, and entered to Epi-Data version 3.1 and then was exported to SPSS version 25.0 for analysis. Descriptive statistics were done by computing summary statistics like frequency, mean, percentages, and standard deviations, and the results were presented in tables and graphs. Binary logistic regression analysis was employed. The logistic regression model analyzed the tendency of the relationship between explanatory variables (socio-demographic characteristics, knowledge about family planning methods and reproductive history of mothers) and the probability of unintended pregnancy. The logistic model was the model of choice to analyze the dichotomous variable. Collinearity was checked for independent variables before being included in the model. The fit of the model was also assessed. The positive or negative sign of the coefficient β indicates the direction of the relationship between a given independent variable and the dependent variable, while the odds ratio indicates the magnitude of change in the probability of the dependent variable event in case of a one-unit change in the independent variable (Hosmer and Lemeshow, 2000).

The logistic model is of the form

$$Y = \ln\left[\frac{P\text{i}}{1 - P\text{i}}\right] = \beta\text{o} + \beta 1X1i + \beta 2X2i + \cdots \beta kXki$$

Where the subscript ì means the ìth observation in the sample. P is the probability that a mother will have unintended pregnancy for an observed set of variables and [1 – P] is the probability that a mother will have intended pregnancy. β_0 is the intercept term and β_1,β_2 ... , βk are the coefficients of the independent variables X_1, X_2 ,…, X_k.

The dependent variable was unintended pregnancy (1=yes, 0= no) and the independent variables were residence, number of pregnancy, family size, knowledge about family planning methods and number of pregnancy. Final results of association were presented based on adjusted odds ratio at 95% confidence level and $p< 0.05$ was considered statistically significant.

Results

Socio-demographic characteristics of respondents

From the study participants, 49.4% of them were in the age group of 20- 24 years that was followed by 25-29 age group (25.5%) and 15-19 age group (8.3%). Nearly, 35.1% of respondents were 7-12th grade, and eighteen percent was 1-6th grade. Among surveyed respondents, 43.6% were housewives, followed by 23.6% merchants, and 21.0% government employees, and 8.8% farmers. Regarding their religion, 65.5% of them were protestant followed by Orthodox Christianity (24.9%). The majority (91.7 %) of respondents were married, and lived in urban area (69.6%) (Table 1).

Table 1. Socio-demographic characteristics of pregnant women attending ANC at Durame Maternal Health Center, 2020 (N=385).

Variable		Frequency(n)	Percent (%)
Age of the mothers	15-19	32	8.3
	20-24	190	49.4
	25-29	98	25.5
	30-34	25	6.5
	35-39	27	7.0
	40-44	12	3.1
	45-49	1	0.3
Marital status	Single	16	4.2
	Married	358	91.7
	Divorce	12	3.1
	Widow	4	1.0
Educational level	Illiterate	60	15.6
	Read and write	61	15.8
	1-6th grade	70	18.2
	7-12th grade	135	35.1
	12th&above	59	15.3
Religion	Muslim	35	9.1
	Protestant	252	65.5
	Orthodox	96	24.9
	Others	2	0.5
Occupational status	Housewife	168	43.6
	Government Employees	81	21.0

Journal of Science and Inclusive Development Vol. 4, No. 1, DOI: 10.20372/jsid/2021-104

	Merchant	91	23.6
	Farmer	34	8.8
	Daily labor	11	2.9
Residence	Rural	117	30.4
	Urban	268	69.6
Decision-makers	My self	102	26.5
	My husband	55	14.3
	Together	228	59.2

Of all the respondents, 23.4% of them have never used modern contraceptives and the main reason was lack of information (36.7%) and child preference (33.3%). The figure below indicates the main barriers not to use modern contraceptives in the study area (Figure 1).

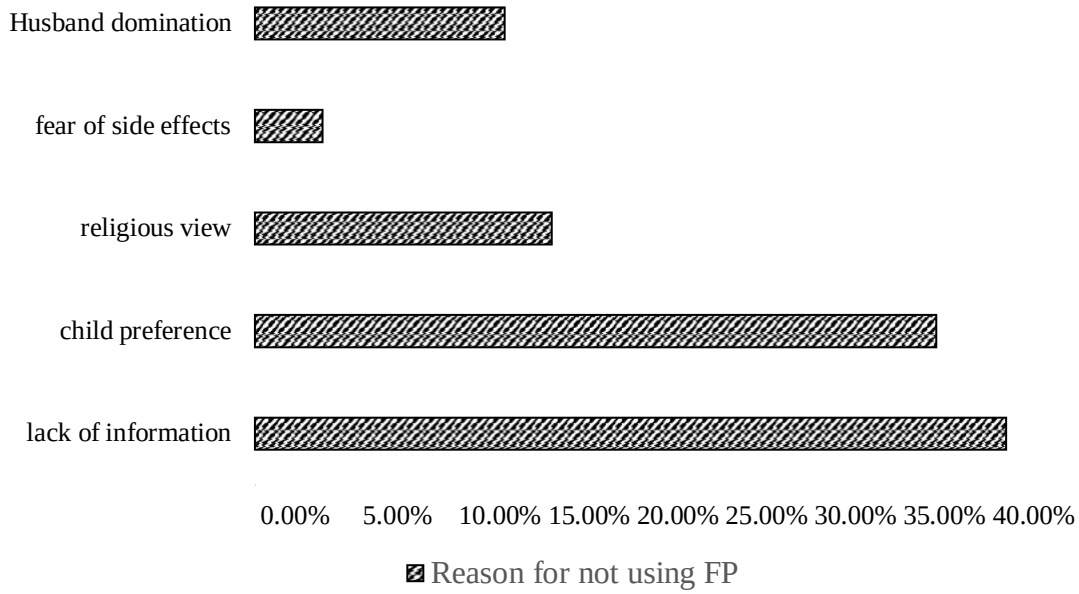

Figure 1. Reasons for not using modern contraceptives among pregnant women attending ANC at Durame Maternal Health Center, 2020

Awareness and practice on modern contraceptives

The majority of the studied subjects (89.1%) had heard of modern contraceptives. Their sources of information included: 60.1% from health workers, 10.2% from mass media, 6.1% from a relative, and 4.9% from written materials. 76.6% of study subjects had previously used modern contraceptives while 23.4% had never used any methods of modern contraceptives. Injectable

contraceptives were the most frequently (54.2%) used method followed by implants (23.1%). Frequently, reported reasons for non-use of modern contraceptives were lack of awareness (36.7%), wanting to give birth (33.3%), and husband domination (12.2%) (Table 2).

Table 2. Awareness and source of information about modern family planning (FP) methods among ANC attending women of Durame maternal health center, 2020 (N=385).

Variable		Frequency(N)	Percent (%)
Ever heard information about family planning	Yes	343	89.1
	N0	42	10.9
If yes, source of information	Health workers	269	78.4
	Relatives	21	6.1
	Mass media	35	10.2
	Written materials	17	4.9
	Others	1	0.4
Ever used of FP methods	Yes	295	76.6
	N0	90	23.4
If yes to the above questions, types of Family planning used.	Pills	31	10.5
	Injectable	160	54.2
	Implant	68	23.1
	Condoms	15	5.1
	Intra-Uterine Device	6	2
	Natural methods	15	5.1
Reason for not using FP methods	Lack of information	33	36.7
	Child preference	30	33.3
	Religious view	13	14.5
	Fear of side effect	3	3.3
	Husband domination	11	12.2

Journal of Science and Inclusive Development Vol. 4, No. 1, DOI: 10.20372/jsid/2021-104

Reproductive history of pregnant women

The majority (83.9%) of the study subjects were pregnant before their current pregnancy. Among surveyed respondents, 26.8% had unintended pregnancies, and of these 89.3% had 1–2 unintended pregnancies. The most frequently reported reasons for failure to avoid unintended pregnancy were forgetting contraceptives (33%) followed by failure of contraceptives (25.2%). Other reasons were breastfeeding as contraception (17.5%), lack of means to protect (14.6%), and husband disapproval (9.7%). Of those who reported contraceptive failure (20.6%) had used pills and 61.1% were injectable users. From the total respondents, 33.8% of them needs four children for a lifetime, followed by five (25.7%), and the majority of them (87.5%) were expected that the family planning method can help them to get the number of children they want to get (Table 3).

Table 3. Reproductive history of pregnant women among ANC attending women of Durame Maternal Health Center, 2020 (N=385)

Variable		Frequency(n)	Percent (%)
Pregnancy before the current pregnancy	Yes	323	83.9
	No	62	16.1
Number of pregnancy before the current pregnancy	1-2	128	39.7
	3-4	139	43.0
	5-6	45	13.9
	>6	11	3.4
Unintended pregnancy	Yes	103	26.8
	No	282	73.2
Reason for having an unintended pregnancy	Lack of means to protect	15	14.6
	Forgetting taking contraceptives	34	33
	Breastfeeding	18	17.5
	Failure of contraceptive usage	26	25.2
	Husband preference	10	9.7
Type of method failure	Pills	11	20.6
	Injectable	33	61.1
	Implant	3	5.6

	Others	7	13
Knowledge about family planning methods	Yes	275	71.4
	No	110	28.6
Family size	One	10	2.6
	Two	48	12.5
	Three	59	15.3
	Four	130	33.8
	Five	79	25.7
	Six or more	39	10.1
Does family planning program help you to get the desired numbers of children?	Yes	337	87.5
	No	48	12.5

Distribution of respondents by the status of their current pregnancy

Out of the total participants, 26.8% respondents claimed their current pregnancy was unintended (Figure 2).

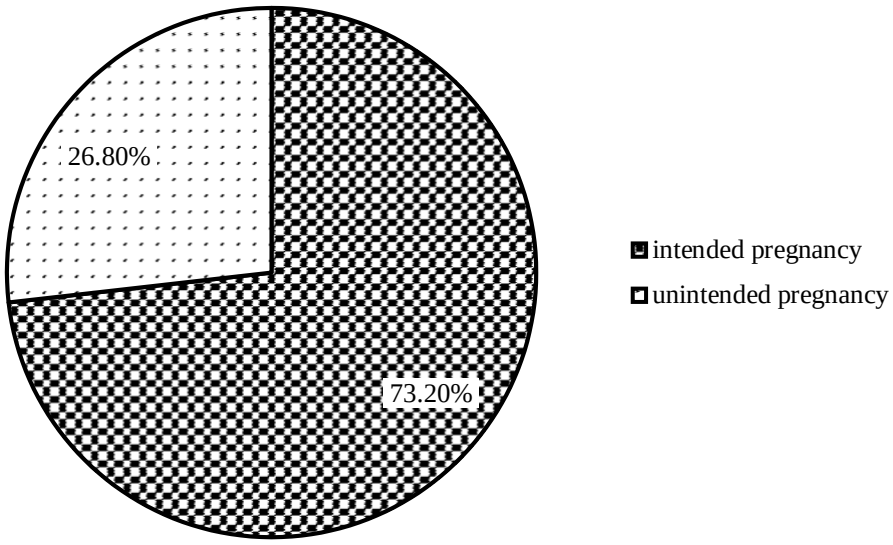

Figure 2. Status of pregnancy among women following ANC at Durame Maternal Health Center

Thirty-three percent of them claimed that the reason for their unintended pregnancy was forgetting to take contraceptives followed by a failure of contraceptive usage (25.2%) (Figure 3).

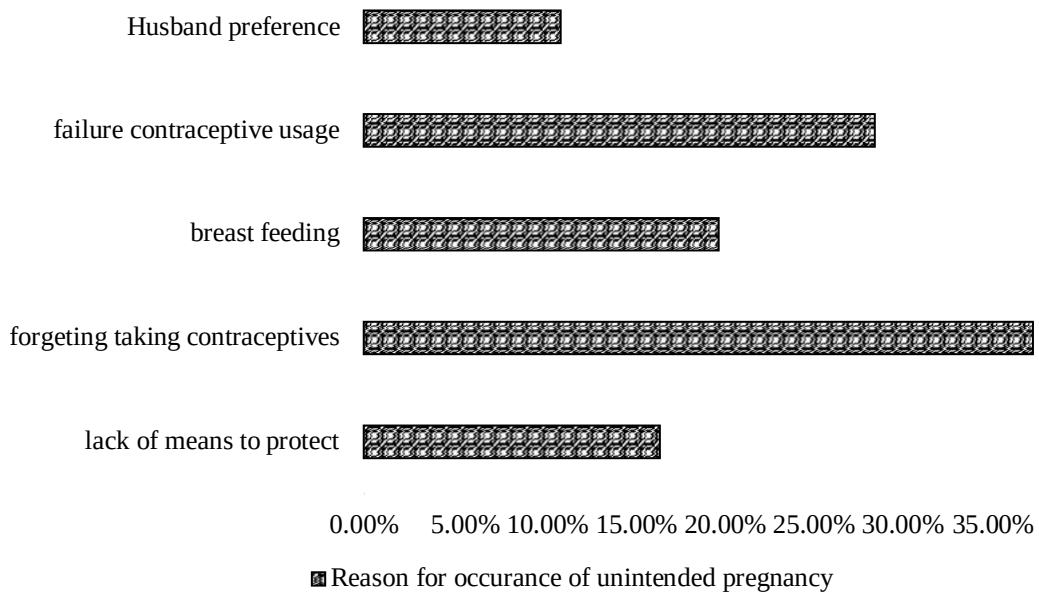

Figure 3. Reasons for the occurrence of unintended pregnancy among women following ANC at Durame Maternal Health Center, 2020

Factors affecting unintended pregnancy

In the multivariable analysis; knowledge about family planning methods, family size, and the number of pregnancies were significantly associated with unintended pregnancies ($p<0.05$). Mothers who were not knowledgeable about family planning methods were 2.541 times more likely to have an unintended pregnancy than mothers who were knowledgeable about family planning methods (AOR=2.541, 95% CI=1.953,6.101). Mothers whose family size six or more were 2.8 times more likely to have an unintended pregnancy than mothers who have one (AOR=2.8, 95% CI=1.19, 6.60). Mothers who had a history of greater than six pregnancies were 7.323 times more likely to have an unintended pregnancy than mothers who had 1-2 pregnancies (AOR=7.323, 95% CI=3.987, 10.056). Mothers who had a history of 3-4 pregnancies were 3.210 times more likely to have an unintended pregnancy than mothers who had a history of 1-2 pregnancies (AOR=3.210, 95% CI=1.678,4.721) (Table 4).

Table 4. Bivariate and Multivariate analysis showing an association between unintended pregnancy and maternal factors among ANC attending women of Durame Maternal Health Center, 2020

Variables		Unintended pregnancy		COR(95%CI)	AOR(95%CI)	p-value
		Yes	No			
Residence	Urban	61	207	1	1	1
	Rural	42	75	1.90(1.18, 3.05)	1.208(0.89,2.85)	0.149
Number of pregnancy	1-2	22	106	1		
	3-4	51	88	2.792(0.0.875,3.876)	3.210(1.678,4.721)	0.001*
	5-6	24	21	5.506(0.280,7.645)	6.021(0.987,10.045)	0.621
	>6	6	5	5.782(3.043,7.421)	7.323(3.987,10.056)	0.000*
Knowledge about family planning methods	Yes	74	201	1		
	No	30	80	1.018(0.834, 3.687)	2.541(1.953,6.101)	0.000*
Family size	1	8	2	1	1	
	2	18	30	0.15(0.28,1.24)	1.17(0.55,2.49)	0.68
	3	20	39	0.128(0.097,0.604)	1.023(0.631,2.323)	0.146
	4	20	110	0.045(0.008,1.065)	0.503(0.158,1.147)	0.409
	5	26	73	0.089(.26,1.67)	1.70(.76,3.83)	0.690
	>=6	11	28	0.098(0.039,1.90)	2.8(1.19,6.60)	0.002*

* Statistically significant at $p<0.05$

Discussion

Family planning is one of the most effective strategies in reducing maternal death due to unintended pregnancy and the risks of unsafe abortion. It can also prevent closely spaced and ill-timed pregnancies and births, which contribute to the high infant mortality rate in the developing world (Singh et al., 2010).

The study showed that the magnitude of unintended pregnancy in Durame was 26.8% with 95% CI (0.229-0.307). The finding of the study was similar to study in other areas of Ethiopia (26.6%), Saesie (24.9%), Adis Zemen hospital (26.1%), Michew town (29.7%) (Teshale and Tesema, 2020; Beyene, 2019; Kassahun et al., 2019; Tsegaye et al., 2018). But it is higher than a study conducted in Belessa woreda of Ethiopia and Tepi General Hospital in Sheka zone of Ethiopia (13.7% and 22.3%), respectively (Habtamu et al., 2020; Goshu and Yitayew, 2019). However, the finding was lower than a study conducted at Jimma town of Ethiopia, Bako Tibe district of Ethiopia, Hawassa city public hospital of Ethiopia, and Jimma zonal hospital of Ethiopia (36.5%, 33.3%, 33.7%, and 39%), respectively (Gebrehiwot et al., 2019; Workineh et al., 2018; CSA, 2012). This might be due to the difference in sample size, sociocultural characteristics, and health coverage of the study area, as well as the difference in the availability and accessibility of services (like access to modern contraceptives) for maternal health services.

Similar to the result of studies reported for Tepi General Hospital, Bale zone, and Debre Markos town (Kumneger et al., 2021; Workineh et al., 2018; Darega, 2015), forgetting to take contraceptives/ inconsistent use was the main reason for the occurrence of unintended pregnancy in our study. This could be due to poor counseling during service delivery, which includes not introducing women to different types of contraceptive methods that would be used for the long term.

Mothers who were not knowledgeable about family planning methods were 2.541 times more likely to have an unintended pregnancy than mothers who were knowledgeable about family planning methods. This finding was in line with a study conducted in Saesie Tsaeda Emba woreda of Ethiopia, Tepi General Hospital in Sheka zone of Ethiopia, and Jimma town of Ethiopia (Beyene, 2019; Gebrehiwot et al., 2019; Workineh et al., 2018). This might be not having knowledge about family planning methods which was associated with increased odds of reporting

the pregnancy as unintended in Ethiopia. In Eastern Ethiopia and South Africa, knowing at least one modern contraceptive method was associated with reduced odds of reporting a pregnancy as unintended (Luchuo et al., 2020).

Mothers with family size of six or more were 2.8 times more likely to have an unintended pregnancy than mothers who have one. The finding is similar to the study conducted in the Bako Tibe district of Ethiopia, Adis Zemen hospital of Ethiopia, Jimma town of Ethiopia, and Michew town of Ethiopia (Habtamu et al., 2020; Beyene, 2019; Goshu and Yitayew, 2019; Kassahun et al. 2017). This might be due to the unmet need for family planning and women could already have attained the number of families they desired.

Mothers who had a history of greater than six pregnancies were 7.323 times more likely to have an unintended pregnancy than mothers who had a history of 1-2 pregnancies. Mothers who had a history of 3-4 pregnancies were 3.21 times more likely to have an unintended pregnancy than mothers who had a history of 1-2 pregnancies. This finding is consistent with the study conducted in the Bako Tibe district of Ethiopia and Adis Zemen hospital of Ethiopia (Habtamu et al., 2020; Goshu and Yitayew, 2019). This is because high gravid women might already have adequate children and practice sex for enjoyment rather than to have children. In addition, it might imply the gaps in counseling and the provision of postpartum contraceptives.

Conclusion

The magnitude of unintended pregnancy in Durame was optimal compared to other studies. The number of pregnancies, knowledge about family planning methods, and family size were among the significantly associated factors with an unintended pregnancy. There is an apparent need to design strategies of communication within couples on fertility and contraceptive issues through peer education and promote family planning methods. Special attention could be taken for these high-risk groups in terms of increasing accessibility and availability of maternal health services and counseling and by doing so unintended pregnancy could be decreased.

Declarations

Ethical approval and consent to participant

Ethical clearance was obtained from Wolaita Sodo University, College of Health science and Medicine ethical review committee. Permission from Durame Health Department was taken before initiating data collection through official letters from Wolaita Sodo University, College of Health Sciences, and Medicine. Mother was informed about the purpose of the study, anticipated benefit, full rights to refuse part or all of the study, and the study doesn't affect their future life. Confidentiality was assured during the data collection process. Other responsible authorities were also informed to get their support and cooperation for the study.

Conflict of interests

The authors declare that they have no conflict of interests

Funding

No financial support has been obtained for this study.

Acknowledgments

We are very grateful to the Wolaita Sodo University for proving us the ethical clearance. We are also indebted to thank Durame town health office, Durame town administration, and study participants for their cooperation during data collection.

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