Ambivalent fertility desire and its associated factors among pregnant women attending in governmental primary hospitals in Tigray, Ethiopia

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Abstract

Background: Fertility desire had been compromised by dichotomized measures (intended an unintended) which fail to fully capture women's feeling and emotion regarding their pregnancy at th time of conception.However, current research works clearly indicates the presence of a substantia portion of women who are ambivalent about their pregnancy, and who thus do not fit into one-dimensional definitions. Believing the proportion of these mothers as substantial with unique characteristic this topic has never been tested in Ethiopia.

Objective: To measure the magnitude of Ambivalent fertility desire and its associated factors among women attending in governmental primary hospitals in Tigray 2019.

Methods and materials: Cross- sectional study designs was conducted among randomly selected 501 pregnant mothers from ten primary hospitals of Tigray. London psychometric measure was used to assess ambivalent fertility desire. For analyses, statically package for social science version 22 was used. Percentage and frequency was used to describe the data, cross tabulations with chi - square tests of significance and multivariate logistic model was performed for factor analyses. Finally results were summarized through tables and graphs.

Result: The overall magnitude of ambivalent pregnancy occurrence was 35.3%: 95% CI, (31.1, 39.5). Participants with low religious affiliation were less likely to have ambivalent as opposed to Intended and 83% less likely to have Ambivalent rather than unintended pregnancy than those highly affiliated. Participants in the middle age category 21up 34 years old were 3-4 times higher to have ambivalent pregnancy rather than planned and unplanned pregnancy as compared to other age category. The odds of mothers who ever give birth to have an ambivalent rather than planned pregnancy were 2.9 times higher than the odds of primiparousand 15 higher to have Ambivalent rather than unintended pregnancy.

Conclusion: More than one third of mother's pregnancies were occurred while they had ambivalent pregnancy intentions. Being in the middle of adult's age at conception, high religiosity and having a child were predictors of ambivalent pregnancy intention. Better understanding of dimensions of pregnancy intentions is needed to improve ways of helping women to prevent ambiguity in pregnancies.

Key Words: Fertility desire, Ambivalent, women, Tigray

Background

Unintended pregnancy continues to attract concern and attention from researchers, policy makers and program implementers. Mainstream research and policy work ends to treat fertility and pregnancy intentions as clear-cut dichotomous categories (i.e. intended or unintended) (1, 2). Pregnancy wanted status is derived from retrospective reporting on the last pregnancy or childbirth in most surveys. The demographic and health surveys (DHS) measure pregnancy wanted status using the following question: At the time you became pregnant, did you want to become pregnant then, did you want to wait until later, or did you not want to have any (more) children at all? An unintended pregnancy is then classified as one that is reported to have been mistimed (occurred earlier than planned) or unwanted (occurred when no more children were desired (3). This classification is simplistic and does not reveal the complexity of reproductive intentions(1, 4). However, women's answers to questions about the planning or wontedness of a pregnancy are often inconsistent with their expressed desires to avoid pregnancy and with their contraceptive behaviors. More than half of unplanned pregnancies occur among women who were not using any method of contraception the month they conceived(5), suggesting the existence of a category other than "trying to" or "trying not to." The incongruence between not wanting to get pregnant and inconsistent contraceptive use could reflect ambivalence towards pregnancy(6).

Although the classification of pregnancies into intended and unintended remains quite common, evidence suggest that, this simple dichotomy does not reflect women's lived experience (7-10). Women who are unsure could either be transitioning between intentions or could simply be less "plan full" about their fertility had been neglected or unrecognized for a while(11). Recently different studies found almost a quarter of sexually active women with in the age of 25 - 45 don't really care if they get pregnant or not. Supporting this idea, a researchers from the University of

Nebraska- Lincoln, a full 23% were "OK either way ";(12) this suggests a significant percentage of women are pretty serene about whether or not they conceive right now or even blasé (13).

Some quantitative studies have similarly established the existence of pregnancy ambivalence in different settings. For example a mega study in the United States (US) found that 29% of the women expressed ambivalence about pregnancy (2). Another longitudinal study in the US found that 45% of women and men respondents exhibited pregnancy ambivalence (14). In Africa, an analysis of DHS data from Burkina Faso, Ghana and Kenya showed that at least a quarter of women (a third in Kenya) who wanted to delay or limit childbearing reported that a pregnancy in the next few weeks will not be a problem(15) this midpoint response could be an evidence to the existence of ambivalent fertility desire.

Numerous maternal characteristics have been documented and categorized as factors associated with planned and unplanned pregnancy intent. In the literature review, the following are among the many that showed an association with planning pregnancies: increased age (5, 8), higher educational attainment (8, 9), more wealth (6, 9), white race/ethnicity compared to all others (9), marriage more stable or higher quality relationships (7), more religiosity (15), and prior births (8). Characteristics associated with intending no births include multiple children (6), and being in a cohabiting relationship (16).

Building on this considerable prior research, even emerging evidences are contribute efforts to understand childbearing intentions by explicitly comparing women who are “okay either way” to those who are trying to or trying NOT to get pregnant, most of the studies come from the US, and western world with a few exceptions; even these lucked accurate measures of women’s pregnancy intentions which is an important for estimating unmet need for contraception (4, 15). Beside this there is a dearth of information on the extent of pregnancy ambivalence and its determinants in the developing world so this study aimed to determine the magnitude and predictors of pregnancy ambivalence in the study setting.

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Methods

Study Design and Period

Institution based cross sectional study was used and the research was conducted from February 30 up to April 30 2019.All pregnant women who come to maternal and child Health unites (MCH)of primary hospitals in Tigray was the study population. Mother who had a first trimester pregnancy, no more than 16 weeks gestational age were include in the study to minimize recall bias. Mother who failed to remember their last menstrual period was excluded from the study.

Sample size determination and sampling Technique

The sample size was calculated using a single population proportion formula by considering the proportion ambivalent fertility desire 23%, taken from similar setting from Kenya (16)and 5% margin of error at 95% confidence level. Considering 2 design effect for the multistage use and 10% contingency for non- response rate the ultimate total sample size was 519. A total of 24 governmental primary hospitals avail in the region of theses 10 hospitals were selected through lottery method. The sample size were distributed to the selected based on the case flow rate of the hospitals and systematicsimple random sampling procedure was employed to enroll the actual participants (K= 2)and among mother who come for follow and those had a follow up every 2 pregnant mothers was requested to participate.

Data collection tool and measuring of pregnancy ambivalence

Pretested and structured interviewer administered questionnaire was used. The questioner first prepared in English and then translated to local language Tigrigna and then translated back to English for consistency .The tool had 23 questions and to assess the pregnancy intention, a variant psychometric measureLondon measure of unplanned pregnancy (LMUP)developed inUK was used. This tool comprises 6 questions covering 6 thematic areas of current or recent pregnancy: fertility intentions, desire for motherhood, contraceptive use, preconception preparations, timing, and partner influence. Each item is scored 0- 2 meaning that the total score ranges from 0- 12. The scores were categorized as follows: 0- 3 (Unplanned); 4- 9 (Ambivalent); 10- 12 (Planned) (5).

Data Analysis

The data was cleaned, edited, coded and analyzed using SPSS version 23. The analysis involved, deriving descriptive results through frequency, percentage as well as mean and standard deviation.In the actors analyses, the first step was performing cross tabulations with chi - square tests of significance. The second part was fitting a multivariate logistic regression model to identify the predictors of pregnancy ambivalence. All covariates of theoretical significance in the multivariate regression declared at p-value <0.05 with 95% CI.

Ethical consideration

Ethical clearance obtained from Institutional Review committee of Mekelle University (ERC:(ERC: 1354/2019)) and an official letter of co-operation and permission obtained from regional health bureau and selected facilities. Written informed consent obtained from participants and privacy and strict confidentiality was maintained. The absence of any direct benefit from participating in the study and risks following not participating in this study was declared.

Result

Socio demographic and economic variables

The analysis was made on the base of 501 participants making a response rate of 96.5%. The mean ages of participants were 26 with SD of $\pm$ 5.2 with a range of 19-39 years old. All the participants had a religion and 211 (42.1%) had high religious affiliation and the proportion of ambivalent pregnancy was higher (50.5%) among those highly affiliated compare medium (32.2%) and low (11.5%) religiosity. More than half (57.3%) of the participants were married and 297(59.3%) were jobless (Table 1).

Table1: Socio demographic and economic characteristics of pregnant mothers attending in primary hospitals in Tigray. (n=501)

Variable	N (%)	Pregnancy Intention		
		Un planned	Ambivalent	Planned
Age at conception				
Less than 20 years old	190(37.9)	22 (11.6)	36(18.9)	132(69.5)
21-34 years	243(48.5)	15 (6.2)	118 (48.6)	110(45.3)
35 years and Above	68(13.6)	20 (29.4)	23(33.8)	25(36.8)
Religion				

Orthodox	406 (81)	45 (11.1)	142(35)	219(53.9)
Muslim	59(11.8)	0	23 (39)	36(61)
Protestant	36(7.2)	12 (33.3)	12 (33.3)	12 (33.3)
Religiosity				
Low	96 (19.2)	12 (12.5)	11 (11.5)	73 (76)
Medium	211(42.1)	22 (10.4)	68 (32.2)	121 (57.3)
High	194(38.7)	23 (11.9)	98 (50.5)	73(37.6)
Relationship status at conception				
Not Married	85 (17)	12 (14.1)	36 (42.4)	37 (43.5)
Not Cohabitated	129 (25.7)	11 (8.5)	47 (36.5)	71(55)
Married	287(57.3)	34 (11.8)	94 (32.8)	159 (55.4)
Educational status of respondent				
Unable to read	12 (2.4)	0	12 (100)	0
Read and write	11(2.2)	11 (100)	0	0
1-8 Grade	167(33.3)	0	58 (34.7)	109 (65.3)
9-12 Grade	178(35.5)	23 (12.9)	34 (19.1)	121 (68)
College and above	133(26.5)	23 (17.3)	73 (54.9)	37(27.8)
Have a job				
Yes	204 (40.7)	46 (22.5)	60 (29.5)	98 (48)
No	297 (59.3)	11 (3.7)	117 (39.4)	169 (56.9)
Monthly income				
Low	175 (34.9)	17 (9.7)	94(53.7)	64(36.6)
Medium	250 (49.9)	24 (9.6)	36 (14.4)	190 (76)
High	76(15.2)	16 (21.1)	47 (61.8)	13 (17.1)

Health and Socio-cultural context

Regarding the participants relationship, the mean relationship time was 3.9 year with SD of 2.6, with a range of 1-10 years relationshipduration.Three hundred eleven (62.1%) participants had at least one child; of those 175(34.9%) had a birth interval of less than two year. Regarding their pregnancy, those primiparous had a lower proportion (18.9%) of ambivalence than others (45.3%). Participants also reported showed that, 452(90.2%) never worried for not giving birth,of those 177(39.2%) conceived while they were unsure to have pregnancy or not.

Table2:Result on socio-cultural and health context of pregnant mothers attending in primary hospitals in Tigray. (n=501)

Variable	**N (%)**	**Pregnancy Intention**

		Un planned	Ambivalent	Planned
Have you ever give a birth				
Yes	311(62.1)	24(7.7)	141(45.3)	146(46.9)
No	190 (37.9)	33(17.4)	36(18.9)	121(63.7)
Previous child Sex(n=311)				
Preferred sex	167(53.7)	60(35.9)	34(20.4)	73(43.7)
Not preferred sex	144(46.3)	50(34.7)	50(34.7)	44(30.6)
Ever worried for not giving birth				
Yes	49(9.8)	0	0	49(100)
No	452(90.2)	57(12.6)	177(39.2)	218(48.2)
HIV Status				
Positive	0	0	0	0
Negative	456(91)	35(7.7)	166(36.4)	255(55.9)
Un known	45(9)	22 (48.9)	11(24.4)	12(26.7)
History of abortion				
Yes	60(12)	0	24(40.0)	36(60.0%)
No	441(88)	57 (12.9)	153 (34.7)	231(52.4)
Have Known medical illness				
Yes	108(21.6)	12(11.1)	36(33.3)	60(55.6)
No	393(78.4)	45(11.5)	141(35.9)	207(52.7)

Reproductive and contraceptive characteristics

Regarding participants reproduction and contraceptive use, 192(38.3%) of the participants had sex before the age of 18 year, but those mothers who exposed to sexual practice after the age of 18 years had a higher (43%) proportion of ambivalent pregnancy than their counter part (18.8%). Four hundred six (81%) participants ever tried to delay or prevent pregnancy, of those 267(65.8%) used injectable before this pregnancy. All these who were using pill and traditional method before pregnancy were conceived while they were indecisiveto have pregnancy. Among the participants only 208(41.5%) didn't use any method to prevent or delay the current pregnancy by intending to give birth but 59(28.4%) of them had an ambivalent pregnancy intention.

Table3: Reproductive and contraceptive characteristics of pregnant mothers attending in primary hospitals in Tigray. (n=501)

Variable	N (%)	Pregnancy Intention		
		Un planned	Ambivalent	Planned
Age at first sexual contact				

Less than 18	192(38.3)	22 (11.5)	36 (18.8)	134 (69.8)
18 and above	309 (61.7)	141 (45.6)	133(43)	35(11.3)
Ever used anything to delay or prevent pregnancy				
Yes	406 (81)	35 (8.6)	153 (37.7)	218 (53.7)
No	95 (19)	22 (23.2)	24 (25.3)	49 (51.6)
Mostly used FP Method				
Implant	46 (11.3)	0	35 (76.1)	11(23.9)
IUD	47 (11.6)	12 (25.5)	23 (48.9)	12 (25.5)
Injectable	267 (65.8)	12 (4.5)	60 (22.5)	195 (73)
Pill	24 (5.9)	0	24(100)	0
Emergency Pill	11 (2.7)	11(100)	0	0
Traditional Method	11 (2.7)	0	11(100)	0
FP Choose by				
Herself	312(76.8)	35 (11.2)	131 (42)	146 (46.8)
Both	94(23.2)	0	22 (23.4)	72 (76.6)
Reason for not using contraceptive				
I dislike it	70(14)	22 (31.4)	12 (17.1)	36(51.4)
I forget it	23(4.6)		23(100)	
Don’t care if pregnancy happen	178(35.5)	106 (59.6)	72 (40.4)	0
Sex not planned	11(2.2)	11(100)	0	0
Method didn’t work	11(2.2)	0	11(100)	0
To give birth	208 (41.5)	24(11.5)	59(28.4)	125(60.1)

Fertility desire

The overall magnitude of ambivalent pregnancy occurrence was 35.3%: 95% CI, (31.1, 39.5). Of the participants 177 (35.3%) conceived while they were “Ok either way” or unsure whether to have pregnancy no not. On the other hand, 267(53.3%) had a planned pregnancy and the remaining 57(11.4%) had unplanned pregnancy (Figure1).

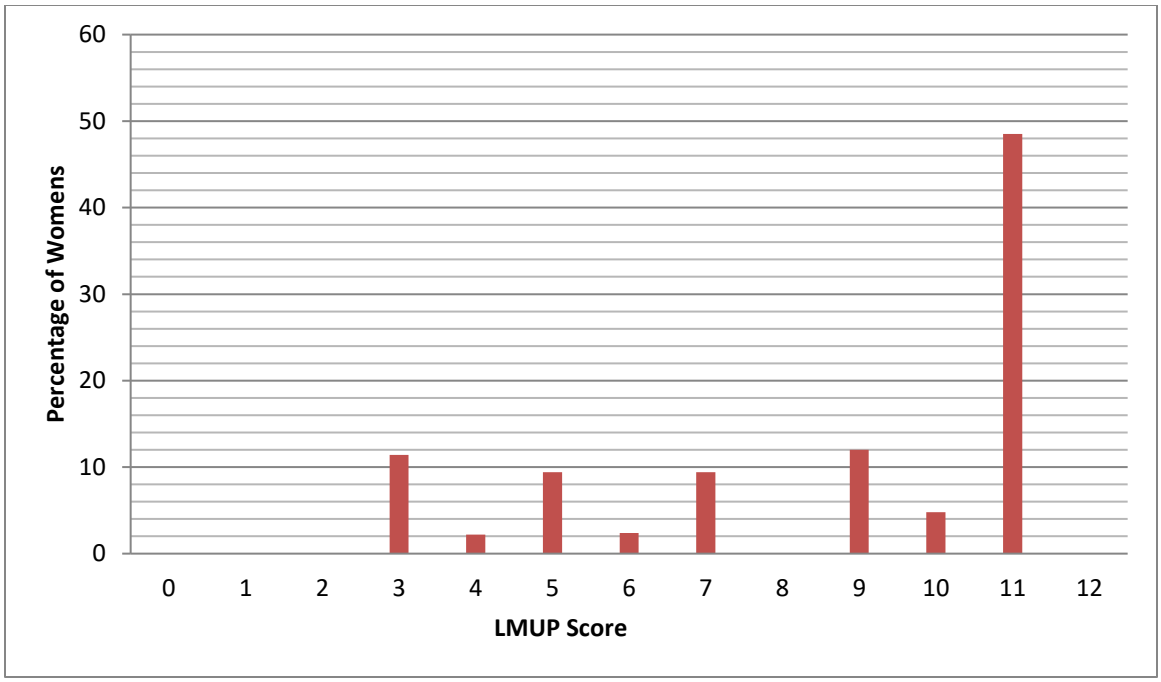

Figure1: Distribution of London Measure of Unplanned Pregnancy scores for pregnant mothers attending on primary Hospitals in Tigray.

Factors associated with ambivalent fertility desire

The likelihood of being ambivalent is compared to that of having an unambiguously intended or unintended pregnancy using multinomial logistic regressions. Overall, mothers who impregnated while they were ambivalent are distinct from each of the other groups of mothers.Among the socio demographic characteristics, age and religiosity showed a significant association with ambivalent pregnancy.

Participants with low religious affiliation were 95% (P-value<0.001) less likely have ambivalent as opposed to Intended pregnancyand 83% (P-value<0.001) less likely to have Ambivalent rather than unintended pregnancy than those highly affiliated. In addition to this, parity had an association with ambivalent pregnancy intention.Participants in the middle age category 21up 34 years old were more likely to have ambivalent pregnancy rather than planned (OR: 3.082(1.54,6.16)) and un planned pregnancy (OR: 3.96(2.522,6.22)) as compared to those in the age category of less than 2o and above 35 years old. The odds of mothers who ever give birth to have an ambivalent rather than planned pregnancy was 2.9 times higher than the odds of primiparous (OR: 2.90(1.42,5.94)) and the odds were 15 higher to have Ambivalent rather than unintended pregnancy (OR: 15.48(4.29, 28.12)) (Table4).

Discussion

This study leverages existing measurements of cognition, behavior, and emotion by using them in conjunction to create an assessment of ambivalent intentions. Ambivalent in this context is measured as incongruent cognitions, behaviors, and emotions. It can mean those of two minds, wanting and not wanting the pregnancy at the same time.Socio-demographic variables such as age and religiosity and women's parity were predictors of ambivalent pregnancy intention.

In this study 35.3%: 95% CI, (31.1, 39.5) of pregnant mother admitted as their pregnancy happened while they had an ambivalent pregnancy intention. This result is higher than previous studies conducted in in US 25% (2), and a national representative study conducted in Britain, 29·0% (25·2–33·2) (17).

Table4: Predictors of Ambivalent Pregnancies, Compared with Intended and Unintended Pregnancies, among pregnant mother attending on primary Hospitals in Tigray (n=501)

Variable	Ambivalent vs. Intended				Ambivalent vs. Unintended			
	Coefficient	SE	Odds ratio (95% CI)	P-Value	Coefficient	SE	Odds ratio (95% CI)	P-Value
Religious Affiliation								
Low	-5.310	.594	0.05(0.02,0.16)	<0.001	-2.560	.587	0.17(0.024,0.24)	0.001
Medium	-2.915	.454	0.054(0.022,1.13)	<0.11	-.316	.458	0.72.(0.29,1.78)	0.49
High	0[b]		1		0[b]		1	
Age at first sex								
Less than 20	1.355	.342	3.87(0.98,7.57)	0.101	.241	.443	1.27(0.53, 3.03)	.586
21- 34	1.126	.354	3.082(1.54,6.16)	0.001	1.377	.230	3.96(2.522,6.22)	<0.001
35 and above	0[b]		1		0[b]		1	
Ever give birth								
Yes	1.066	.365	2.90(1.42,5.94)	0.027	2.740	.460	15.48(4.29, 28.12)	<0.001
No	0[b]		1		0[b]		1	
Monthly house hold Income								
Low Income	-.722	.533	0.48(0.17,1.38)	0.130	2.337	.542	10.34(0.97,29.92)	.100
Medium income	-3.695	.560	0.25(0.008,1.074)	0.501	.400	.536	1.49(0.52,4.26)	.4.55
High Income	0[b]		1		0[b]		1	
Intercept	4.532	.821		.000	-.509	.680		0.454

It is also higher than the result of DHS data analysis from Burkina Faso, and Ghana which showed one fourth of women who wanted to delay or limit pregnancy were unsure if they really are preventing pregnancy as they think, pregnancy in the coming weeks will not be a problem (15). But this result is lower than the study conducted in UAS, which showed ambivalent pregnancy intention in 45% of young adults(14); the reason might be the study population, because this study conducted among all reproductive age groups.it is also higher than the study conducted in kenya, which showed 43% of the respondents expressed some ambivalence about getting pregnancy(16).

The characteristics of mothers with ambivalent intentions differ substantially from those of both mothers with intended pregnancies and mothers with unintended pregnancies. Ambivalent mothers were more

religious, middle aged adult and those who already have a child.Participants with low religious affiliation were 95% (OR: 0.05(0.02, 0.16)) less likely to have ambivalent as opposed to Intended pregnancy and 83% (OR: 0.17(0.024, 0.24)) less likely to have Ambivalent rather than unintended pregnancy than those highly affiliated. This result support a data form previous studies conducted in US that document religious faith of the woman as predictor of pregnancy ambivalence before conception(2), and another study that document women who were "okay either way" about getting pregnant were highest on religiosity(14). This might due to the reason that, highly religious women would have less pregnancy termination intention and more likely to have pregnancy wontedness after conception, but low religiously affiliated mothers would more like to maintain only intended pregnancy.

The other characteristic was age, the relationship between age and pregnancy ambivalence was documented as unclear. However, in this study middle category age of 18 up to 24 years age at conception had ambivalent pregnancy. This result is similar with previous literature that suggests ambivalence may be positively associated with women in the prime reproductive years of 21 to 30 during conception(14, 16, 18). A result of the National Survey of Family Growth (NSFG)found that individuals in their 20s were more likely than adolescents to be ambivalent about avoiding pregnancy(14), and another study conducted in US (18). Another study conducted in Kenya also showed that, woman aged 25 up 34 were more ambivalent compared to an adolescent and older woman(16). This might be due to the reason that, this age category is an ideal age for relationship and child bearing;however, adolescents are more likely to have unambiguously unintended or intended pregnancy.

The entry into childbearing is a major transition point, and might be expected to provoke feelings of ambivalence; and mothers with a first child were more likely to have unambiguously intended their pregnancy, and least likely to have unambiguously not intended pregnancy (19). However, this research indicates that, ambivalent mothers were more likely to be having their first child. This result is in line with other similar study(18) which documented, women are clearest and least ambivalent about their intentions for a first

child. The mostly cited reason is, when mothers are considering their wishes for additional children, their intentions for the preceding pregnancy are highly relevant. Mothers with ambiguous intentions are less likely to wantadditional children than mothers with intended pregnancies, and more likely to want additional children than mothers with unintended pregnancies(18).

Though, beside its important this study has limitations. Even most of the participants were open for health professionals, using face-to-face interviews to gather information onpersonal matters such as pregnancy intentions may have contributed to reporting bias as womenmight face a problem to reveal the issue.The study was conducted on mothers who had less than 16 weeks of gustation, so mothers might have difficulty on recalling the preconception intention and this might affect the classification of pregnancy intention.

Conclusion

More than one third of mother'spregnancies were occurred while they had ambivalentpregnancy intentions. This provides a strong indication that conceptualization of pregnancy intention through dichotomization might oversimplifying women's experience of pregnancy.For better understanding of dimensions of pregnancy intentions, LMUPmeasurement may improve ways of helping women to prevent unplanned pregnancies. The high proportion of ambivalent mothers also reflects prior research indicating that the experience of pregnancy intention is complex and multidimensional.Being in the middle of adult's age at conception, high religiosity and being already delivered women's parity were predictors of ambivalent pregnancy intention.Thus, health care providers should discuss pregnancy risks and contraceptive options with women who are in the age of twenties, those already have their first baby and more religiously women's, since they are not motivated to prevent pregnancy before it occurs. Beyond these researchers are expected to assess preconception pregnancy intention by including pregnancy ambivalence and its consequence through longitudinal method.

List Abbreviations

CI: Confidence Interval

DHS: demographic and health surveys

ERC: Ethical Review Committee

MCH: Maternal and Child Health
NSFG: National Survey of Family Growth
OR: Adjusted odds ratio
SD: Standard deviation
SPSS: Statically package for social science
US: United States

Competing interests: All the authors declare that they have no competing interests.

Authors' contributions: MH designed the study, performed the statistical analysis and drafted the manuscript. DM, HM, MGand MG participated in the study design, implementation of the study, and MH draft and finalize the manuscript. All authors contributed to the data analysis, read and approved the final manuscript.

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