

# What Women Do Before Pregnancy? A Preconception Care of Women in Mizan-Aman town Southwest, Ethiopia, A Mixed Study

Melsew Setegn

Department of Reproductive Health and Nutrition, School of Public Health, College of Health Science, Mizan-Tepi University, Mizan-Teferi, Ethiopia

## Corresponding Author\*

Melsew Setegn

Department of Reproductive Health and Nutrition, School of Public Health, College of Health Science, Mizan-Tepi University, Mizan-Teferi, P.O. Box 260, Ethiopia.

E-mail: melsewsetegn2010@gmail.com

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## Abstract

**Background:** Preconception care is highly important in reducing a number of adverse pregnancy outcomes and helps to improve maternal health but a little is known in Ethiopia and its utilization status is not well studied. There is limited study on pre-pregnancy care in Ethiopia in general and in study area in particular. So, this study aimed to determine preconception care utilization and associated factors among women in Mizan-Aman town, Southwest Ethiopia.

**Methods:** A community based cross-sectional study design was employed from April 16 to May 26, 2020 in Mizan-Aman town. Data were collected by using pre-tested interviewer administered questionnaires and entered into Epi-data version 3.1 then exported to and analyzed by using SPSS version 24. Statistical significance was assessed by using multivariable logistic regression analysis by determining odds ratios and 95% confidence interval.

**Results:** The level of preconception care utilization was 16.2%. Being attended tertiary education, planning to pregnancy, good knowledge toward preconception care and previous experience of adverse pregnancy outcome were predictors of preconception care use. Qualitative finding also explored that maternal, health facility and community factors that hinder preconception care utilization.

**Conclusion:** Low preconception care utilization sought the unfamiliarity of the women or the couples with the availability and potential benefits of preconception care. Planning to pregnancy, previous adverse pregnancy outcome, maternal educational status and good knowledge towards preconception care were identified as factors for preconception care utilization. Improving women's knowledge on preconception care, improve the women planning pregnancy status and creating intervention that addresses adverse pregnancy outcome are recommended.

**Keywords:** Preconception care, Mizan-Aman town, Ethiopia

## Introduction

Preconception care is the provision of preventive, promotive or curative health, and social interventions before the occurrence of conception. It is given to improve the health outcome for the women, newborns, and children. Maternal and child health (MCH) outcomes are the emphasis area in preconception care [1,2]. Preconception care involves on the biomedical, behavioral, and social health interventions to women and couples before conception occurs and aims to magnify their health status [2,3].

To prevent and reverse the adverse maternal and infant health outcome preconception health care promotion has high value and widely acceptable [4]. Know days, all healthcare providers should begin to provide preconception care to every woman every time [1,2]. While in most developing country the implementation of preconception care is rare and knowledge about

its implementation and usage is low but adverse pregnancy outcome is alarmingly increasing [2,3,5]. In some low and middle income countries, such as Bangladesh, Philippines, and Sri Lanka were implementing the guideline for preconception care [2]. Early start of preconception care particularly for girls living in low and middle income countries is very crucial [6]. Many adolescent girls and young women will be thrust into motherhood without the knowledge, skills or support they need while preconception care had solution to such problem [1].

Low or never use of preconception care has several consequences including maternal and neonatal morbidity and mortality, still birth, low birth weight infant, premature delivery, unplanned pregnancy (rapid successive pregnancy) and increase the health care cost. A study conducted in Ethiopia showed that neural tube defect (27.5%) and hydrocephalus (35.5%) were the major leading cause of admission to the hospital for surgical procedure among children [1,7-9].

Globally less than 1/3rd of the women of childbearing age visiting the health institution and speak with the health care provider prior to the pregnancy about the health status and its potential impact on pregnancy outcome [2]. In Ethiopia a number of problems are occurring during pregnancy. Majority of these problems are prevented if preconception care is properly implemented with the other continuum of care. For instance anemia during prenatal (31.8%), hepatitis B virus infection among pregnant women (4.7%), poor dietary practices (60.7%), alcohol consumption during pregnancy at least once per weeks (34%), malnutrition among pregnant women (31.8%), mother-to-child transmission of HIV infection (9.93%) [10-12].

In an era of sustainable development goals (SDG), maternal, newborn and child health still require improvement. To achieve SDG 3 in 2030 care of mothers and newborn is necessary important [11]. Even though preconception care is highly important in reducing a number of adverse pregnancy outcomes and helps to increase other services such as antenatal care and skilled delivery little is known in Ethiopia. Only few studies were done concerning to preconception care in Ethiopia and the existing literature showed that women utilization of preconception care were very low [11-15].

Even though the concept of preconception care has been explored in maternal and neonatal health as an adjunct to reduce maternal and newborn death in the last 2-3 decades in WHO and Centers for Disease Control and Prevention (CDC) [2,3,16] few studies have been examining preconception care utilization in Ethiopia. Investigating the prevalence of preconception care utilization would aid in taking measures for further amendment of service delivery and programs. This in turn allows ministry of health, health sectors and other administrator to design appropriate preconception care policy and implementation strategies.

## Methods

### Study design, period and area

A community based cross-sectional study design was conducted in Mizan-Aman Town, Bench-Sheko Zone, Southwest Ethiopia from April 16 to May 26, 2020. The town is located 561 km northeast of Addis Ababa. The town is divided into 5 kebeles that has a total area of 142.71 km with an average elevation of 2840m above sea level. According to the information obtained from the district health office in 2018/19, a total estimated population of 69,453 of which, 32,273 are females. Out of all females, 24,679 were women of reproductive age (15-49 years). There are one teaching hospital, one health center and five health posts, one university and one college under the government. Mizan-Tepi University teaching hospital is the only teaching hospital in the Bench-Sheko zone that gives charge free service for maternal and neonatal care.

### Study participants

All reproductive age women who lived in Mizan-Aman town were the source and study population. All reproductive age group women who had a history of pregnancy and lived in Mizan-Aman town for 6 months and above were included under the study and a total of 12 in-depth interviews were selected.

### Sampling technique and procedure

The sample size was determined by using single population proportion formula with the assumption of 95% confidence level, 4% margin of error and the proportion of preconception care was taken from previous study conducted in West Shoa 38.2% [15].

$$n = (z\alpha / 2)^2 * p * (1 - p) / d^2$$

Where; n=sample size

Z $\alpha$ /2=95% confidence interval (1.96)

P=38.2% taken from the previous study [15]

d=4% margin of error

Based on the above assumption

$$n = (1.96)^2 * 0.382(1 - 0.382) / (0.04)^2 \approx 567$$

Considering a 10% non-response rate, so the sample size calculated from single population proportion was 624.

All the five Kebeles of Mizan-Aman were taken. To reach the study unit systematic random sampling technique was used in the Kebeles. The first house was selected randomly and then every 16<sup>th</sup> house for all kebele was asked. The sampling interval of the households in each Kebele was determined by dividing the total number of households in the specific kebele to the allocated sample size. When there was no a reproductive age group woman in the selected house, nearby house was selected and interviewed. In case of more than one eligible woman were encountered in the selected household, a lottery method was used to determine which woman would be interviewed.

### Study variables

Dependent variable: Preconception care utilization

Independent variables: Socio-demographic characteristics, Obstetric and reproductive health factors, Knowledge towards preconception care, Attitude towards preconception care, Health facility related.

### Data collection process

Pretested interviewer-administered structured questionnaire was adapted from different literatures [7,12,13,15]. The questionnaire was prepared first in English and then translated to local language (Amharic) and was re-translated back to English by another person to ensure its consistency and accuracy. Experts were assessed whether the data collection tool measures what it intended to measure and it was comprehensive enough to collect all the information needed to address the objective of the study. Cronbach's  $\alpha$  coefficient were computed to test the internal consistency of the tool and it was  $\alpha=0.796$  which indicates the tool is reached at acceptable level of reliability.

### Data management and analysis

Auditing, coding and sorting of the collected questionnaire was done manually every day to check for completeness. After checking the completeness of the data, the data were entered by Epi-data manager version 3.1 and then exported to SPSS version 24 statistical package for analysis. Descriptive analysis was done for both dependent and independent variables and presented in terms of frequency, mean, percentage and text. Principal component analysis (PCA) was used to compute the wealth index from household asset and utility. Appropriateness of PCA for the items was checked by Kaiser Meyer Olkin (KMO) measure of sampling adequacy. KMO indicated that each variable measure of sampling adequacy was greater than 0.50 and overall KMO was 0.585 and Bartlett test of sphericity showed  $p<0.001$ . The case to variable ratio showed that 17.8 to 1 which indicates above the required 5 to 1 ratio. Items with communality  $<0.50$  and have complex structure ( $\geq 0.4$  loading on more than one component) in the rotated component matrix was removed from analysis. Varimax rotation was employed during factor extraction to minimize cross loading of items on to many factors. Bivariate binary logistic regression analysis was performed to select variables for multivariable binary logistic regression analysis. Variables with the p-value  $<0.25$  in bivariate binary logistic regression was taken as the candidate for multivariable logistic regression analysis.

Finally multivariable logistic regression analysis was performed to control the possible confounding effect of the selected variables and variables with the P-value  $<0.05$  were taken as statistically significant association with the women's utilization of preconception care. Backward elimination method was used to run multivariable logistic regression analysis. Model fitness was checked by using Hosmer and Lemeshow goodness of fit test ( $\chi^2=1.234$ , p-value=0.975). Multicollinearity was checked and there was no multicollinearity among the independent variables including in the model and the maximum

variance inflation factor were 1.158. Statistical significance between dependent and independent variables were assessed by odds ratios and 95% confidence intervals.

### Data quality control

The questionnaire was first prepared in English and then translated to Amharic and re-translated back to English by other person to ensure its consistency and accuracy. Pre-test was carried out in Wacha Maji town on 5% of the sample size which was 31 reproductive age women for one day. After conducting pre-test some correction of tool was done. Internal consistency reliability analysis was carried out and Cronbach's alpha showed the questionnaire reached acceptable reliability,  $\alpha = 0.796$ . Training was given for one day for both data collectors and supervisors. The supervisors supervise the performance of the data collectors on daily basis. The collected data were checked for completeness, consistency and clarity by principal investigator and trained supervisors.

### Operation definition

Preconception care: The provision of preventive, promotive or curative health and social interventions before conception occurs. Interventions of preconception care (PCC) could be delivered both in health facilities and in community settings. Interventions like nutritional deficiencies and disorders, vaccine-preventable infections, tobacco use, environmental risks, early pregnancies, unwanted pregnancies and rapid succession pregnancies, sexually transmitted infections [1].

Preconception care utilized: If the women utilized three or more component of preconception care before conception for their index pregnancy labeled as utilized otherwise not utilized [12].

Good knowledge on preconception care: Those who have scored greater than or equal to 50% of correct responses to preconception care knowledge questions [14].

Pre-existing medical illness: Women who have medical problems like Diabetes Mellitus (DM), Hypertension (HTN), HIV/AIDS, asthma, anemia, epilepsy and cardiac problem and follow up at health facility before they become pregnant.

Adverse pregnancy outcomes: Pregnancy outcome like low birth weight, preterm birth, congenital anomaly, still birth, abortion and neonatal death [7].

## Results

### Socio-demographic characteristics

A total of 605 respondents were included in the analysis for this study with the response rate of 96.95. The mean ( $\pm$ SD) age of the study participants was 34.77( $\pm$ 6.068) years. More than half of the respondents, 324(53.6%) were in the age group of 35-49 years. Majority, 470(77.7%) of the respondents were residing in urban area. More than half 334 (55.2%) of the respondents were Orthodox religion follower. Most 396(65.5%) of the respondents had no formal education. About, 371(61.3%) were housewives by occupation. More than one-fifth, 133(22.0%) of the respondents were in the category of fifth quintile (Table 1).

### Obstetric and reproductive health characteristics

Majority, 509(84.1%) of the study participants were multiparous. More than two fifth, 271 (44.8%) of the study participants planned their pregnancy. About, 409(61.6%) of the respondents were used family planning in their life time. On the subject of Antenatal Care (ANC) visit more than half, 342(56.5%) of the respondents had attend at least one ANC visit in their nearest pregnancy and of all, 182(53.2%) of the respondents were only attended first and second ANC visit. Regarding to postnatal care use of the respondents, 115(19%) of them were used for the nearest delivery and majority, 90(78.3%) of the respondent had attended only one or two PNC visit for their nearest delivery. On the subject of previous adverse pregnancy outcome ever in life time, 106(17.5%) of the study participants had history of one or more adverse pregnancy outcome experienced before in their life time. Of them, who had adverse birth outcome; 48(45.3%), 31(29.3%), 28(26.4%) and 17(16.3%) of the participants had experience abortion, still birth, neonatal death and low birth weight respectively (Table 2).

### Women's knowledge and attitude on preconception care

Among the total 605 study participants, 454(75.0%) of the respondents have heard about preconception care. The main source of information was health institution, 186(41.0%), school, 105(23.1%), neighbor, 94(20.7%), and other were heard from mass media, 52(11.5%) and family or friend, 17(3.7%). Overall, the minimum knowledge score of study participant were zero and the maximum score were twenty four. Of all study participant, one hundred sixty one, 26.6% (95%CI: 23.1, 30.3) of them had good knowledge towards preconception care.

**Table 1.** Socio-demographic characteristics of reproductive age women in Mizan-Aman town, Bench-Sheko Zone, Southwest Ethiopia, 2020 (n=605).

Variables	Category	Frequency	Percent
Age of respondents	15-24 years	36	6.0
	25-34 years	245	40.5
	35-49 years	324	53.6
Residence	Urban	470	77.7
	Peri-urban	99	16.3
	Rural	36	6.0
Religion	Orthodox	334	55.2
	Protestant	171	28.3
	Muslim	77	12.7
	Otherst	23	3.8
Ethnicity	Bench	187	30.9
	Amhara	180	29.8
	Keffa	91	15.0
	Welayita	54	8.9
	Oromo	42	6.9
	Tigray others*	36 15	6.0 2.5
Marital status	In marital union	599	99.0
	Not in marital union**	6	1.0
Educational status	No formal education	396	65.5
	Primary(1-8)education	99	16.4
	Secondary (9-12)	56	9.3
	Tertiary(>12)	54	8.9
Main occupation of respondent	Housewife	383	63.3
	Employed (Gov't, private)	167	27.6
	Farmer	55	9.1
Husband educational status(n=599)	No formal education	256	42.7
	Primary(1-8)education	165	27.5
	Secondary(9-12)	113	18.9
	Tertiary(>12)	65	10.9
Husband occupation (n=599)	Farmer	255	42.6
	Merchant	169	28.2
	Employed(Gov't/private)	95	15.9
	Others±	80	13.3
Husband occupation (n=599)	Farmer	255	42.6
	Merchant	169	28.2
	Employed(Gov't/private)	95	15.9
	Others±	80	13.3
Total family size	≤ 4	272	45.0
	>4	333	55.0
Wealth index	1 <sup>st</sup> Quintile(Lowest)	123	20.3
	2 <sup>nd</sup> Quintile	118	19.5
	3 <sup>rd</sup> Quintile	130	21.5
	4 <sup>th</sup> Quintile	101	16.7
	5 <sup>th</sup> quintile(highest)	133	22.0

†Catholic, Juba \*Sheka, Silitsa, \*\*Single, Separated, Divorced, ±Student, Daily worker

Of the total 605 respondents, 204(33.7%) [95% CI: 30.0, 37.5] had positive attitude towards preconception care.

#### Health facility related factors

Of 605 respondents, 238(39.3%) of the study participants got the service about the sake of healthy pregnancy during their visit in health facility and of them only, 12(5.1%) paid for the services. More than one fifth, 142(23.5%) of the study participants had health insurance.

#### Preconception care utilization

Preconception care utilization among the reproductive age women in Mizan-Aman town indicated that 16.2% [95%CI: 13.4, 19.4] of the respondents were utilized preconception care.

#### Factors associated

Bivariate binary logistic regression analysis revealed that there were eight variables candidate for the final model. Thus, those variables were educational status, planning to pregnancy, previous PNC visit, previous ANC visit, pre-existing chronic illness, good knowledge towards preconception care, previous experience of adverse pregnancy outcome and distance from health facility were recruited for multivariable logistic regression analysis (Table 3).

Multivariable logistic regression analysis showed that educational status, planning to pregnancy, good knowledge toward preconception care and previous experience of adverse pregnancy outcome were statistically significant association with preconception care utilization (Table 3).

## Discussion

The finding of this study revealed that 16.2% of reproductive age women were utilized preconception care. This is consistent with the study conducted in Debre Birhan town Amhara region which showed 13.4% of women were utilized preconception care [17] and Mekelle town, northern Ethiopia which showed 18.2% of recently delivered women were utilized preconception care [12]. This might be due to similar socio-demographic characteristics of the study participants and similarity in study design. In addition this might be due to similar health facility to number of population distribution ratio of the country. This implies that the service intake ability of the women depends on the availability and accessibility of health facility.

While, this study was by far lower than the study conducted West Shoa Zone which showed that 38.2% of the women who attended ANC were experienced preconception care [15]. This might be due to difference in study setting since the previous study was facility based and difference in study population. In addition, this might be due to difference in level of knowledge of study

**Table 2.** Obstetric and Reproductive health characteristics of reproductive age women in Mizan-Aman town, Bench-Sheko Zone, Southwest Ethiopia, 2020 (n=605).

Variables	Categories	Frequency	Percent
Age at first pregnancy	Less than 18	21	3.5
	Greater than or equal to 18	584	96.5
Gravidity	Only 1 pregnancy	82	13.6
	2-4 pregnancies	394	65.1
	≥ 5 pregnancies	129	21.3
Parity	Primipara (one delivery)	96	15.9
	Multiparous (≥ 2 deliveries)	509	84.1
Planning to pregnancy	Yes	271	44.8
	No	334	55.2
Previous use of family planning	Yes	409	61.6
	No	196	32.4
Types of family planning use(n=409)	Injectable	222	54.3
	Implant	93	22.7
	Oral contraceptive	82	20.0
	Condom	6	1.5
	Post pill	6	1.5
Previous ANC visit for nearest pregnancy	Yes	342	56.5
	No	263	43.5
Number of ANC visit(n=342)	1-2	182	53.2
	3	89	26.0
	≥ 4	71	20.8
Previous PNC visit for nearest delivery	Yes	115	19.0
	No	490	81.0
Number of PNC visit(n=115)	1-2	90	78.3
	≤ 3	25	21.7
	Yes	106	17.5
Previous adverse birth outcome ever	Yes	106	17.5
	No	499	82.5
Types of adverse pregnancy outcome(n=106)(multiple response)			
	Ever experience Spontaneous abortion	48	45.3
	Ever give still birth	31	29.2
	Ever experience neonatal death	28	26.4
	Ever give low birth weight	17	16.3
	Ever experience congenital anomalies	15	14.2
	Ever give preterm baby	12	11.3

**NB:** For types of adverse pregnancy outcome the total summation of percentage is more than 100% due to multiple responses.

**Table 3.** Binary and multivariable logistic regression analysis of factors associated with preconception care utilization among reproductive age women in Mizan-Aman town, Bench-Sheko Zone, Southwest Ethiopia, 2020 (n=605).

Variables	Categories	Preconception care utilization		COR [95% CI]	AOR [95%CI]
		Yes	No		
Educational status	No formal education	49 (12.4)	347 (87.6)	1.00	1.00
	Primary (1-8) education	13 (13.1)	86 (86.9)	1.07 (0.56, 2.06)	0.99 (0.49, 1.99)
	Secondary (9-12) education	19 (33.9)	37 (66.1)	3.64 (1.94, 6.82)*	3.44 (1.71, 6.93)*
	Tertiary (>12)	17 (31.5)	37 (68.5)	3.25 (1.70, 6.22)*	2.28 (1.12, 4.64)*
Planning to pregnancy	Yes	67 (24.7)	204 (75.3)	3.21(2.2, 5.09)**	2.40 (1.46, 3.95)**
	No	31 (9.3)	303 (90.7)	1.00	1.00
Previous ANC visit	Yes	69 (20.2)	273 (79.8)	2.04(1.28, 3.26)*	1.17 (0.68, 1.99)
	No	29 (11.0)	234 (89.0)	1.00	1.00
Previous PNC visit	Yes	26 (22.6)	89 (77.4)	1.69 (1.03, 2.81)*	1.58 (0.90, 2.77)
	No	72 (14.7)	418 (85.3)	1.00	1.00
Chronic illness	Yes	32 (34.0)	62 (66.0)	3.48 (2.11, 5.73)*	1.36 (0.76, 2.46)
	No	66 (12.9)	445 (87.1)	1.00	1.00
Knowledge on preconception care	Good knowledge	54 (33.5)	107 (66.5)	4.59 (2.92, 7.20)**	3.91(2.40, 6.38)**
	Poor knowledge	44 (9.9)	400 (90.1)	1.00	1.00
Previous experience of APO	Yes	36 (34.0)	70 (66.0)	3.63 (2.24, 5.87)**	3.32 (1.95, 5.63)**
	No	62 (12.4)	437 (87.6)	1.00	1.00
Distance from health facility	≤ 2 km	33 (23.6)	107 (76.4)	1.89 (1.18, 3.04)*	1.20 (0.69, 2.09)
	>2km	65 (14.0)	400 (86.0)	1.00	1.00

1.00: reference group, COR: Crude odds ratio, AOR: Adjusted odds ratio, C.I: Confidence interval, APO: Adverse pregnancy outcome \*\*Statistically significant at p-value<0.0001, \*Statistically significant at p-value<0.05.

participants since in the previous study 63.4% of the study participants were knowledgeable [15]. Knowledge provide the substance and tools for cognitive problem solving so being knowledgeable increases positive behaviour towards action [18]. This clearly indicated that improving the level of knowledge of

the women enhance utilization preconception care. So, improving women's knowledge towards preconception care and improving the use antenatal care could increase the use of preconception care. This is clearly indicated that a lot need to be done in study area as well as in the country.

The current study was much lower than the study conducted in Sudan which showed that 40% of reproductive age women with rheumatic heart disease were received preconception care [19]. This might be due to difference in study population, difference in level of measurement since in the previous study only counseling is used to measure the women's utilization of preconception care. The other possible explanation to this discrepancy is that difference in study setting and the difference in sample size. In addition, women with chronic illness give more attention to their health before they conceive than the others.

The finding of this study was by far lower than the study conducted in Nepal which showed 51% of the women who attended ANC received preconception care [20]. This might be due to difference in study population and difference in health care system. In addition, this might be variation in intervention from country to country.

The finding of this study was also lower than studies conducted in London (27%) [21], Sri-Lanka (27.2%) [22], Maryland (32%) [23] and Iran (47.7%) [24]. This might be due the difference in incorporating preconception care with other service, difference in quality of health care system, difference in study population and difference in study setting. In addition, this might be due to socio-demographic characteristics of study population. This implicate that setting standard guideline and accessing each components of preconception care for all reproductive age women could increase the utilization of preconception care. This clearly indicated that a lot needs to be done in the study area as well as in the country.

This study also identifies factors associated with preconception care utilization. The current study indicated that women who planned their pregnancy were two times more likely utilized preconception care as compared to those who never planned their pregnancy. This finding was similar with study finding in Adet, northwestern, Ethiopia, Iran, and Sri-Lanka [13,22,24] which showed that preconception care utilization was higher among women who had planned their pregnancy. This might be due to increase health seeking behaviour of the women and increased positive behavior towards action.

In addition, this study indicated that women who had good knowledge on preconception care were almost four times more likely used preconception care than women who had poor knowledge on preconception care. This finding was similar with previous study conducted in Mekelle, Debre Birhan, Krea, Nepal and Nigeria [12,17,20,25] which showed that knowledgeable women were more likely utilized preconception care. This might be due to increase health seeking behaviour of the women and highly motivated to get services. In addition, this might be due to increase positive behaviour towards the action. This implies that improving the women's knowledge could improve the utilization of preconception care. This clearly showed that a lot need to be done to improve knowledge of the women towards preconception care in the study area and in the country for the improvement of preconception care utilization. All key informants explained that the women's knowledge about preconception care was the main factor that determines preconception care use. They explained that being knowledgeable about preconception care helps the women give priority on their health before they conceive and increase their health seeking behaviour which enable them to use preconception care. For example one of the interviewee stated as follows. "...Knowledgeable women had high intention to take preconception care and knowing detail about preconception care motivate to use it" (31years KII, HEW).

The finding of this study also revealed that the women who experienced adverse pregnancy outcome were almost three times more likely utilized preconception care than those who had never experienced adverse pregnancy outcome ever. This finding was similar with previous study conducted in Mekelle, London, Belgium and Iran [12,14,21,26,27] which showed that women who experienced adverse pregnancy outcome were more likely utilized preconception care. This might be due to increased self-responsibility and these women were more conscious on their next pregnancy. Almost all key informants described that women experienced bad birth outcome like abortion, still birth, neonatal death were more motivated to use preconception care. For example the interviewee stated as follows: "...The women who experienced abortion got advice in health facility and also they need healthy pregnancy for next time so they are motivated to use preconception care" (28years KII, midwifery).

"...They need pretty things for future so women experienced neonatal death, abortion and still birth were more intended to seek preconception care than others" (31years KII, HEW).

This study also showed that women who attended secondary education were three times more likely utilized preconception care than those who had no formal education. This is similar with study conducted in Adet, northwestern Ethiopia and Sri-Lanka [17,22] which was showed that preconception care intake was higher among women who attended secondary school than

those who had no formal education. This might be due to easily access to information about preconception care and less likely to shy for getting service before being pregnant.

The current study revealed that women who attended tertiary education were two times more likely utilized preconception care than those who had no formal education. This is similar with study conducted in Nigeria [28] which showed that preconception care utilization was higher among women who had university and college degree. This might be due to increase awareness and more likely to get information during contact with health care provider and increased access to information about preconception care. In addition, this might be due to increase health seeking behaviour of women and increased positive behaviour towards action.

## Conclusion and Recommendations

Low preconception care utilization sought the unfamiliarity of the women or the couples with the availability and potential benefits of preconception care. This study also revealed that there were important factors that determine preconception care utilization. Planning to pregnancy, being attended secondary education, being attended tertiary education, previous experience of adverse pregnancy outcome and good knowledge towards preconception care were identified as factors affecting preconception care utilization. Improving the women's knowledge towards preconception care and engaging the women to plane their pregnancy to improve preconception care utilization were recommended. Prepare learning forum on preconception care by community mobilization. It would be better the health care providers working in the town and zone give advice for all reproductive age women about planning to pregnancy during any maternal services and in any campaign. The Zonal health department would encourage the women's education by giving award and sponsor. It would be better to design culturally appropriate, evidence-based policy, strategical interventions and programs which encompass the all components of preconception care which will be changing into the action.

## Ethics Approval and Consent to Participate

Ethical clearance was obtained from Institutional Review Board (IRB) of Jimma University, Institute of health, Faculty of public health. Support letter was obtained from department of population and family health. The necessary permission was obtained from Mizan-Aman town health office.

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