

Practice of Preconception Care and Associated Factors among Pregnant Women in Manna District, Southwest Ethiopia: A Community-Based Cross-Sectional Study

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ABSTRACT

Background: Preconception care is an intervention provided to women and couples of childbearing ages, regardless of pregnancy status or desire, before pregnancy to improve health outcomes for women, new-borns, and children. Preconception care bridges the gap in the continuum of care and addresses pre-pregnancy health risks and health problems that could have negative maternal and fetal consequences. Therefore, this study aimed to assess the practice of preconception care and associated factors among pregnant women in Manna district, Jimma zone, Oromia Region, Ethiopia.

Methods: A community based cross-sectional design and triangulated with qualitative data was conducted among 636 pregnant women from March 02 to April 10, 2019. The 26 Gandas of the district were first stratified into urban and rural. Then, the urban Ganda was taken purposively and among the 25 rural Gandas, 8 Gandas were selected by using a simple random sampling technique. Judgmental sampling technique was used to select the qualitative participants. The data were collected using pre-tested and structured questionnaires through face-to-face interviews. The data were entered into Epi data Manager Version 4.0.2 and then exported to SPSS version 21. Descriptive analysis, Binary and multivariable logistic regression analyses were carried out. Qualitative data were analyzed by using Atlas ti version 7.0.71.

Result: Among 623 respondents, 39(6.3%) of pregnant women had good practice of preconception care. Women who had formal education AOR 3.27[95% C.I 1.11-9.60], reside in urban AOR 3.33[95% C.I 1.26-8.81], those who were on follow up for pre-existing medical illnesses AOR 4.52[95% C.I 1.61-12.70] and those who had good knowledge of preconception care 4.18[1.64-10.65] were more likely to had good practice of preconception care compared to their counterparts.

Conclusion: In this study, women's practice of preconception care was low compared to other studies. Attending formal education, residing in urban, being on follow up for pre-existing medical illnesses, and having good knowledge of preconception care were independent predictors of women's practice of preconception care. Therefore, all the concerned bodies are recommended to work towards the improvements of women's practice of preconception care especially through raising the awareness of the community.

Keywords: Preconception Care, Practice, Pregnant Women, Manna, Ethiopia

Abbreviations: AIDS: Acquired Immune Deficiency Syndrome; ANC: Antenatal Care; AOR: Adjusted Odds Ratio; CI: Confidence Interval; COR: Crude Odd Ratio; FGD: Focused Group Discussion; HCP: Health Care Provider; HEW: Health Extension Worker; HIV: Human Immune Virus; KII: Key Informant Interview; MNCH: Maternal, Newborn, and Child Health; PC: Preconception Care; SPSS: Statistical Package for Social Science

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Received: February 10, 2021; Accepted: March 01, 2021; Published: March 08, 2021

Citation: Teshome F, Kebede Y, Abamecha F, Birhanu Z. (2021) Practice of Preconception Care and Associated Factors among Pregnant Women in Manna District, Southwest Ethiopia: A Community-Based Cross-Sectional Study. J Women's Health Care 10:519. doi:10.35248/2167-0420.21.10.519.

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BACKGROUND

Extending the existing Maternal, Newborn, and Child Health (MNCH) continuum of care one step before prenatal care helps to save a number of lives. It enables the women to realize the importance of optimizing their health before conception [1]. Preconception care (PC) is an essential period, which is the foundation for the future health of the mother, her child, and her family [2]. Preconception care is a set of interventions that aim to identify and modify biomedical, behavioural and social risks to a woman's health or pregnancy outcome through prevention and Management [3]. It includes the care before the first pregnancy and the care between the subsequent pregnancies [4]. It is an integral part of antenatal care because it has the potential in assisting women by reducing risks, promoting healthy behaviors and intervening in the identified risks [5]. This can help to gain both short term and long-term health outcomes [6].

Worldwide, maternal mortality and morbidity are still the major health problems [7]. 99% of all maternal and newborn deaths occur in low and middle-income countries [8]. This can be due to a clear gap in the continuum of care, particularly for women who are not pregnant. They get little attention and enter into pregnancy with medical problems and unhealthy behaviours. Even though antenatal care is the component of MNCH care, it begins too late, thereby neglecting the most critical time of embryonic development [9]. By the time most of the women recognize their pregnancy, most of the fetal organs have been formed [10]. For instance, in Ethiopia, the median month for the first ANC visit is 4.7 months [11]. However, major organs like the brain and heart are formed during the first few weeks of conception.

Studies in Ethiopia identified a number of maternal and child health problems. These problems can be addressed during the period of preconception care. For instance, Anaemia during prenatal (31.8%), hepatitis B virus infection among pregnant women (4.7%), Mother-to-child transmission of HIV infection (9.93%), folic acid deficiency in women of reproductive age groups (one in every three women), hydrocephalus (35.5%) and neural tube defects (27.5%) [12-16]. These problems can result in adverse pregnancy outcomes however, prevented if PC is properly implemented. For instance, the prevalence of neural tube defects decreased by 50-70% through supplementation of folic acid during preconception period [17].

In addition, preconception care is highly associated with increasing the utilization of services like antenatal care, skilled delivery care and post-natal care [18]. However, it has not been widely utilized especially in low and middle-income countries [9]. In Ethiopia also little or no known about women's practice of preconception care. Therefore, this study aimed to assess the practice of preconception care and associated factors among pregnant women which will potentially serve to rethink about maternal and child health systems at policy, program, and management levels and helps to promote healthy behaviours.

MATERIAL AND METHOD

Study design and setting

A community based cross-sectional design and triangulated with qualitative data was conducted from March 02/2019-April 10/2019 in Manna district among pregnant women. Manna district is one of the twenty-one districts found in Jimma zone, Oromia Regional State. It is located 368 kilometres Southwest far from Addis Ababa

and 22 kilometres from Jimma town. According to the 2019 report obtained from the Manna District health office, the district has a total population of 197,911; of which women of reproductive age groups were 43,738 and pregnant women were 6,868. The district has a total of 26 Gandas: 1 urban Ganda and 25 rural Gandas. It has 7 health centres, 26 health posts, 11 private clinics, and 3 private pharmacies. It has also 68 health extension workers and 121 health care providers of different professions.

Population

The source populations were all pregnant women found in the district during the study period. The study populations were randomly selected pregnant women among all pregnant women found in the district who fulfil the inclusion criteria. All pregnant women who lived in the district at least six months prior to the study period were included in the study. Pregnant women who were critically ill and unable to communicate were excluded.

For the qualitative study, a total of 13 key informant interviews (KII) and 2 focused group discussion (FGD) were conducted. The key informants were pregnant women, grandmother, traditional birth attendant, health extension workers (HEWs) and health care providers (HCPs) working on areas related to preconception care. Whereas, the participants of FGD were pregnant women, women who recently gave birth and women planning to become pregnant.

Sample size and sampling procedures

Epi Info version 7.1.1 was used to determine the sample size based on the following assumptions: 50% proportion of women's practice of preconception care since there was no prior study in Ethiopia specifically to address the study objectives, 95% level of confidence, 5% margin of tolerable sampling error, 10% non-response and 1.5 design effects. Finally, the calculated sample size becomes 636.

In order to select the study participants; first, the 26 Gandas were stratified into rural and urban. Then, the urban Ganda was included in the study purposively for representation. Eight Gandas among the 25 rural Gandas were selected by a simple random sampling technique. Then, the sample size was proportionally allocated to the selected nine Gandas. The lists of the total number of pregnant women found in the selected rural Gandas were obtained from the family folder of the community health information system which is available at the health post. For Urban Ganda, since the family folder did not exist census was conducted to construct the sampling frame. Finally, computer-generated simple random sampling was used to identify the study participants. Their usual place of residence was identified in collaboration with Ganda leaders. For the qualitative component, a judgmental sampling technique was employed in order to select key informants and participants of focused group discussion.

Data collection and study variables

A pretested interviewer-administered structured questionnaire was used to collect data. The questionnaire was developed by reviewing different existing literatures. It was first prepared in English and then translated to Afan Oromo and Amharic by experts. Then, it was translated back to English by another person to ensure its consistency and accuracy. Pretest was conducted among 5% of pregnant women in the Saka district, which located 20 kilometers away from the study area. A total of 6 data collectors (4 clinical nurses and 2 BSc nurses) and 2 public health officers as supervisors were recruited for the study. The recruitment was based on their

previous experience in data collection and fluency in the languages of the community. In addition, the authors also closely supervised the data collection processes. The data collectors and supervisors were trained for one day on the objective of the study, data collection tool, approach to the interviewees; details of interviewing techniques; respect and maintaining privacy and confidentiality of the respondents. Cronbach's α coefficient was computed to test the internal consistency of the tool and it was 0.88.

The dependent variable was women's practice of preconception care. The independent variables were socio-economic and demographic factors, gynaecologic and obstetric factors, pre-existing medical illnesses, health facility-related factors, media related factor and women's knowledge about PC. Women's knowledge of preconception care was measured based on the individual study participant's correct response of 19 with response choices of Yes/No format. We scored 1 for each correct answer and 0 for each incorrect answer. Women who scored 50% and above of the 19 items were recognized as "women with good knowledge of PC" whereas those who score below 50% of the 19 items were considered as "women with poor knowledge of PC". Women's practice of preconception care was measured using 17 items on the components of preconception care. Women who received at least one of the 17 items on the components of PC for the sake of their becoming pregnant were considered as "women with good practice of PC". Those who do not practice any of the components of PC for the sake of their becoming pregnant were considered as "women with poor practice of PC" [20]. For the qualitative part, KII and FGD were conducted by authors using semi-structured KII and FGD guides.

Analyses

After checking the completeness of the data manually, the collected data were entered, cleaned and checked by Epi data Manager Version 4.0.2. Then, the data were exported to SPSS version 21 for analysis. Bi-variable and multivariable logistic regression was carried out to identify an association between the predictors and outcome variables. Binary logistic regression analysis was performed to select variables for multivariable logistic regression analysis. Variables with p-value <0.25 in the binary logistic regression analysis were taken as candidates for multivariable logistic regression analysis. Finally, multivariable logistic regression analysis was performed to control for the possible confounding effect of the selected variables. Variables with p-value <0.05 were recognized as statistically significant associations with women's high knowledge of preconception care. Odds ratio with its 95% CI was used to show the degree of association between the independent and outcome variable. The multivariable logistic regression model used a stepwise backward model to determine factors associated with 'Women's healthy PC practice'. The goodness of fit of the models was tested by using the Hosmer and Lemeshow test. Descriptive analyses like frequencies and proportions were conducted for different variables as necessary.

For the qualitative component, the audio tape-recorded data were transcribed. Then, translated from the communities' language to the English language. Thematic analysis approaches were used and the data were coded, categorized and thematized by using Atlas ti version 7.0.71.

Data quality control

The questionnaire was first prepared in English, then translated to the local languages Afan Oromo and Amharic and was

translated back to English to ensure its consistency and accuracy. A pre-tested questionnaire was used. A minimum sample size sufficient enough to the objectives of the study was determined. The collected data were checked for completeness, clarity, and consistency. Conducting quantitative and qualitative study helps for methodological triangulation. The study involved different key informants and participants of FGDs which help for data triangulation. The interviews were summarized at the end of each KII and FGD. Colleagues were asked to check and comment on the analysed and interpreted data.

RESULTS

Socio-economic and demographic characteristics of the study participants

A total of 623 pregnant women participated, giving a response rate of 97.96%. The mean (\pm SD) age of the women was 27.21(\pm 5.046) years. More than half, 352(56.5%) were in the age range of 25–34 years. The majority, 553(88.8%) of the respondents were living in rural. More than half, 328(52.6%) of the respondents had no formal education. Whereas, only a few, 8(1.3%) attended college or university level education. Most of the study participants, 462(74.2%) were housewives (Table 1).

Obstetric, gynecologic and pre-existing medical illness of the study participants

Of the total of 623 respondents, 98(15.7%) of the women had become pregnant for the first time. The majority, 421(67.6%) of the women were multiparous. More than half, 351(56.3%) of the women had a history of utilizing short term family planning methods. One hundred thirty-five (21.7%) of the women had a history of four or more ANC visits for their previous pregnancy. The current pregnancy was planned by 423(67.9%) of the women. Forty-six (7.4%) of women had pre-existing medical illnesses (Table 2).

Knowledge of preconception care

In this study, 133(21.3%) of the study participants had good knowledge of preconception care. Of the total of 623 respondents, majority, 583(93.6%), 572(91.8%), 474(76.1%) and 383(61.5%) of the women had knowledge about HIV/AIDS screening, stopping/removing family planning, discussing with her husband about the pregnancy and screening for hypertension before a woman conceive, respectively. However, only 26(4.2%), 38(6.1%) and 91(14.6%), of the women had knowledge about taking folic acid, taking iron and screening for hepatitis b before a woman conceives, respectively.

Practice of preconception care

In this study, among 623 study participants, 39(6.3%) of them had good practice of PC. Specifically, 20(3.2%) consult others for advice, 16(2.6%) took tetanus vaccine, 15(2.4%) screened for HIV/AIDS and 13 (2.1%) reduced/stopped chewing khat before they conceive for the sake of their becoming pregnant. However, there were no women who took iron and folic acid before they conceived (Table 3). This was also supported by qualitative findings. The majority of the key informants and participants of FGD explained that women in the study area are not practicing preconception care. They described that the practice of PC in the community is too rare.

"They consider as they are healthy unless they feel some illness and do not go to the health facility before they conceive" (27 years KII, HCP working on youth-friendly service)

Table 1: Socio- economic and demographic characteristics of pregnant women in Mana district, Jimma zone, Oromia region, Ethiopia, 2019.

Variable	Category	Frequency(N)	Percent (%)
	Mean age = (27.215,046)		
Age of the respondents	15-24	196	31.5
	25-34	352	56.5
	35-49	75	12
Residence	Rural	553	88.8
	Urban	70	11.2
Religion	Muslim	583	93.6
	Orthodox	28	4.5
	Protestant	12	1.9
Ethnicity	Oromo	580	93.1
	Dawuro	21	3.4
	Amhara	14	2.2
	Other*	8	1.3
Educational level of the respondents	No formal education	328	52.6
	Primary education (1-8)	231	37.1
	Secondary education (9-12)	56	9
	Tertiary (college or university)	8	1.3
Main occupation of the respondents	Housewife	462	74.2
	Farmer	106	17
	Merchant	39	6.3
	Other**	16	2.5
Marital status	Married	618	99.2
	Other***	5	0.8
Household wealth	Lowest	215	34.5
	Middle	201	32.3
	Highest	207	33.2

Note: *Kaffa, Gurage and Silxe
 **Student, Daily worker, Private employee and Government employee
 ***Single and separated

Table 2: Obstetric, gynaecologic, and pre-existing medical illness of pregnant women in Mana district, Jimma zone, Oromia region, Ethiopia, 2019.

Variable	Category	Frequency(N)	Percent (%)
Gravidity	Multigravida	525	84.3
	Prim gravida	98	15.7
Parity	Multiparous	421	67.6
	Prim parous	99	15.9
	Null parous	103	16.5
History of ANC visit for previous pregnancy	Not on ANC visit	217	34.8
	One visit	42	6.7
	Two visits	130	20.9
	Three visits	99	15.9
Previous history of Family planning use	Four or more visits	135	21.7
	Not on family planning	173	27.8
	Short term	351	56.3
Current pregnancy planning status	long acting	99	15.9
	No	520	99
Pre-existing medical illness	Planned	423	67.9
	Unplanned	200	32.1
Pre-existing medical illness	Yes	46	7.4
	No	577	92.6

Table 3: Practice of preconception care among pregnant women in Mana district, Jimma zone, Oromia region, Ethiopia, 2019.

Variable	Category	Frequency(N)	Percent (%)
Consult others for advice	Yes	20	3.2
	No	603	96.9
Prepare diet from different cereals	Yes	16	2.6
	No	607	97.4
Took Tetanus vaccine	Yes	16	2.6
	No	607	97.4
Reduced/stopped chewing khat	Yes	13	2.1
	No	610	97.9
Took extra meal	Yes	9	1.4
	No	614	98.6
Took iron	Yes	0	0
	No	623	100
Took folic acid	Yes	0	0
	No	623	100
Screened for HIV/AIDS	Yes	15	2.4
	No	607	97.4
Screened for hypertension	Yes	11	1.8
	No	612	98.2
Screened for anemia	Yes	9	1.4
	No	615	98.7
Screened for blood group	Yes	8	1.3
	No	615	98.7
Screened for Diabetes Mellitus	Yes	7	1.1
	No	616	98.9
Checked their weight	Yes	6	1
	No	617	99
Screened for Hepatitis b	Yes	3	0.5
	No	620	99.5
Husband screened for the sake of her becoming pregnant	Yes	3	0.5
	No	620	99.5
Screened for sexually transmitted infections	Yes	2	0.3
	No	621	99.7
Overall PC practice status	Good Practice of PC	39	6.3
	Poor practice of PC	584	93.7

Note: The sum of the individual components of PC is not equal to the overall PC practiced, as one woman practiced more than one component of PC.

“All most all of the women in our community are not preparing for their becoming pregnant. Because they do not think it is important” (P7, 25 years FGD, women planning to become pregnant)

Predictors of women’s practice of preconception care

This study identified predictors of women’s practice of PC. Women who live in urban were 3.33 times [AOR 3.33 (95% C.I 1.26-8.81)] more likely to have good practice of PC compared to their counterparts. The finding obtained from the qualitative also described that residing in the urban help the women to get awareness about PC from different information sources like media and different people; which help to increase their health-seeking behaviours and practice of preconception care.

“The community can use if they get awareness. Especially the communities in the rural area have no information. Those in the urban may get information about this issue from different media like television and the internet” (30 years, rural Midwifery)

The study also indicated that women who attend formal education were 3.27 times [AOR 3.27 (95% C.I 1.11-9.60)] more likely to have good practice of PC than those who had no formal education. The qualitative finding also explained that having higher educational level enable the women to get information about PC from the education they attend and through increasing their ability to use information sources like book, newspaper, internet, Facebook, etc.

“Those women who are educated know what they do before they conceive. This, in turn, help them to practice preconception care” (P5, 27 years FGD, Women who gave birth recently)

“Women’s educational level decides what they practice. Women who have higher educational level may seek care and practice before they become pregnant because they know its importance” (28 years, HCP working on chronic illness)

Pre-existing medical illness had also an association with women’s good practice of PC. Women who were on follow up for their pre-

Table 4: Factors associated with practice of preconception care among pregnant women in Mana district, Jimma zone, Oromia region, Ethiopia, 2019.

Variable	Category	Practice status		COR [95%C. I]	AOR [95%C. I]
		Healthy PC practice (%)	Unhealthy PC practice (%)		
Residence	Urban	15(21.4)	55(78.6)	6.01[2.98-12.13] **	3.33[1.26-8.81] *
	Rural	24(4.3)	529(95.7)	1	1
Age	Age group (15-24)	17(8.7)	179(91.3)	3.47[.78-15.39]	1.91[.17-21.92]
	Age group (25-34)	20(5.7)	332(94.3)	2.00[.50-9.62]	2.16[.24-19.41]
	Age group (35-49)	2(2.7)	73(97.3)	1	1
Women's education	Formal education	32(10.8)	263(89.2)	5.58[2.42-12.85] **	3.27[1.11-9.60] *
	No formal education	7(2.1)	321(97.9)	1	1
Husband education	Formal education	28(8.6)	297(91.4)	2.46[1.20-5.03]	.72[.25-2.10]
	No formal education	11(3.7)	287(96.3)	1	1
Previous history of ANC visit	One visit	1(2.4)	41(97.6)	1	1
	Two visits	6(4.7)	123(95.3)	1.98[.23-16.97]	1.10[.11-11.23]
	Three visits	6(6.1)	93(93.9)	2.65[.31-22.68]	.88[.09-9.10]
	Four and above visit	12(8.8)	124(91.2)	4.00[.51-31.71]	1.59[.17-15.06]
Knowledge about PC	Good	23(17.3)	110(82.7)	6.19[3.17-12.12] **	4.18[1.64-10.65] *
	Poor	16(3.3)	474(96.7)	1	1
Parity	Prim parous	11(11.1)	88(88.9)	3.38[1.50-7.62] *	1.40[.50-3.93]
	Multiparous	15(3.6)	406(96.4)	1	1
Gravidity	Prim gravida	11(11.2)	87(88.8)	2.24[1.08-4.67] *	
	Multigravida	28(5.3)	497(94.7)	1	
Family Size	≤4	24(9.4)	232(90.6)	2.43[1.25-4.73] *	.90[.28-2.95]
	>4	15(4.1)	352(95.9)	1	1
Pregnancy status	Planned	37(8.7)	386(91.3)	9.49[2.26-39.78] *	2.82[.58-13.76]
	Unplanned	2(1.0)	198(99.0)	1	1
Pre-existing illness	Yes	8(17.4)	38(82.6)	3.71[1.59-8.62] *	4.52[1.61-12.70] *
	No	31(5.4)	546(94.6)	1	1
Wealth Index	Lowest	4(1.9)	210(98.1)	1	1
	Middle	11(5.5)	189(94.5)	3.06[.96-9.76] *	3.99[.56-16.15]
	Highest	24(11.6)	183(88.4)	6.89[2.35-20.21]**	3.88[.55-15.13]
Distance from HF	≤30 Minutes	31(8.6)	331(91.4)	3.39[1.47-7.81] *	2.02[.63-6.42]
	>30 Minutes	7(2.7)	253(97.3)	1	1
Media source	Has TV/Radio	27(10.2)	237(89.8)	3.29[1.64- 6.63] *	1.74[.60-4.99]
	Has no TV/Radio	12(3.3)	347(96.7)	1	1

Note: *Statistically significant at Pvalue <0.05, ** statistically significant at Pvalue <0.001

existing medical illnesses were 4.5 times [AOR 4.52 (95% C.I 1.61-12.70)] more likely to have good practice of PC compared to their counterparts. The qualitative study also supports this finding. It explained that people with some health problem can give more attention to their health than those who do not feel any illness. It also described that frequent contact with health care providers during follow up, increase the chance of getting advice and other services before they conceive.

“Women with health problems like DM and hypertension get advice about their diet, lifestyle, screening for infections, etc before they become pregnant” (26 years KII, Rural HEWs)

“Women on follow up for their medical illness ask us for what they do before they become pregnant. Because they know the impact of their illness on the fetus and their health. But other women do not come to our health center for the sake of becoming pregnant” (28 years, HCP working on chronic illness).

The likely hood of having good practice of PC was four times [AOR 4.18 (95% C.I 1.64-10.65)] higher among women who had good knowledge of PC compared to those who had poor knowledge of PC. Almost all Key informants and participants of FGD also described that women's knowledge about PC was the main factor that determines their PC practice. They explained that having knowledge about preconception care help the women to give attention to their health, gather information and increase their health-seeking behaviours which enable them to practice healthy preconception care (Table 4).

“Women in our district do not get this care. They do not think it is important. This is due to lack of awareness” (57 years KII, Grandmother)

“Those who have knowledge can prepare for pregnancy” (P5, 27 years FGD, women planning to become pregnant)

“They do not practice, because they do not know” (30 years KII, HCP from private clinic)

DISCUSSION

This Women’s health status before conception determines pregnancy outcomes and health of the future generations. Healthy practice before conception results in healthy women, then healthy mothers and healthy child; and forms a chain of events. The finding of this study showed that only 6.3% of pregnant women had good practice of preconception care. This finding was comparable with the study conducted in Adet town, North-Western Ethiopia (9.6%) [19]. This might be probably due to the similarity of study design and similarity of health service. However, this finding was higher than the study conducted in Nigeria (2.5%) [20]. This might be due to the difference in components of PC used. The current study included different components of preconception care, whereas the previous study measured only the supplementation of folic acid before conception. Nevertheless, this study was by far lower than another study conducted in Nigeria (34.1%) [21]. This might be due to the study conducted in Nigeria was facility-based and women who go to the health facility might have good health-seeking behaviour. This finding was also lower than studies conducted in Nepal 51%, Sudan (40%), Iran (31.7%), Southern Sri Lanka (27.2%) and Brazil (15.9%) [22-26]. This might be due to the fact that differences in health systems, different population and different lifestyles. This might also be due to low media coverage, lower educational status and lack of incorporating PC into maternal; and child health care in Ethiopia. It might also be due to smaller sample size in the previous studies.

The study also identified factors associated with women’s good practice of preconception care. The finding of this study showed that urban residence was significantly associated with good practice of preconception care. This finding was consistent with a study conducted in Sudan [27]. The similarity might be due to in the fact that women in urban have a higher chance of obtaining information from different sources. This was also supported by the finding obtained from the qualitative study. In this study, women’s formal education was positively associated with their practice of healthy preconception care. This was similar to the studies conducted in Adet town North-Western Ethiopia, Nigeria, Sri Lanka and West Virginia [19-28]. This might be due to the fact that attending formal education can increase the chance of getting information about their health, which in turn increases their knowledge, health-seeking behaviour and practice. It might also probably due to the reason that education enhances the women’s decision-making power at any level which in turn enables them to practice health preconception care. This was also supported by the finding obtained from the qualitative study.

The finding of this study also showed that women who were on follow up for pre-existing medical illnesses were more likely to have good PC practice than their counterparts. This finding was similar to the survey from the Maryland Pregnancy Risk Assessment Monitoring System [29]. The similarity might be due to; women on follow up for their medical illness had a greater chance of getting preconception care due to their repeated contact with health care providers. It might also be due to the health care providers’ attention. The health care providers give more attention to those who had medical illnesses than people who visit the health facility for screening of diseases or counselling. This finding was also supported by the finding obtained from the qualitative study.

This study also indicated the existence of an association between women’s knowledge of PC with their healthy PC practice. Knowledgeable women were 4.2 times more likely to practice healthy PC than their counterparts. This finding was in line with studies conducted in Korea, Brazil, Iran, Nepal, and Nigeria [21-30]. This might be due to the fact that knowledge can increase the individuals’ intention toward some behaviour and which in turn helps them to practice. This was also supported by qualitative findings.

This study has a number of strengths. One of the strengths is that it is a community-based study that makes it a representation of the true population. It also included both the urban and rural populations which help to understand the women’s practice of preconception care in the district as a general. The other strength is the maximum sample size considered. A study did not end without limitations. Recall bias may occur on some questions such as questions related to obstetric and gynaecologic factors as pregnant women were asked for history before they conceived. Interviewer bias may also occur.

CONCLUSION

The finding of this study showed that women’s practice of preconception care is low compared to other studies. The finding of the current study identified that women’s formal education, urban residency, being on follow-up for pre-existing medical illness and having good knowledge of PC were the predictors of women’s good practice of preconception care. This implies the existence of an information gap about PC in the community. Therefore, collaboration of different stakeholders like the Federal Ministry of Health, Non-governmental Organizations, Media personnel, and health care providers are highly needed to work towards the establishment of preconception care strategies that can address all the components of the care, scaling up health education, and promoting healthy behaviours. In addition, the researchers are also recommended to conduct studies on PC by using strong study designs.

DECLARATIONS

Ethics approval and consent to participate

A letter of ethical approval was received from the Institutional Review Board of Jimma University institute of health. In addition, the official letter of cooperation was obtained from the Manna district health office. The necessary permission was obtained from Ganda leaders.

All the study participants were informed about the purpose of the study, their right to refuse and assured about the confidentiality of the information they provide. Their informed consent was obtained prior to the interview.

Availability of data and materials

The data of the study are available from the corresponding author on reasonable request.

Competing interests

The authors declare that they have no competing interests.

Funding

No funding was obtained for this study.

Author’s contribution

Firanbon Teshome, Zewdie Birhanu and Yohannes Kebede were involved in the conception, design, data collection, analysis, wrote

draft of the paper, report writing, interpretation, wrote the first draft of the manuscript and reviewed the draft. Fira Abamecha was involved design, analysis, interpretation of the study, critically reviewed the study and draft of the manuscript. All authors read and approved the final manuscript and agreed for submission

Acknowledgments

The authors wish to express their thanks to Jimma University for their permission to conduct this study. The authors would like to express their sincere gratitude to study subjects for their willingness to participate in the study. The authors' heartfelt thanks go to Manna district health office and Ganda leaders for their support.

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