Levels and correlates of knowledge and attitude on preconception care at public hospitals in Wolayita Zone, South Ethiopia

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Abstract

Introduction: Preconception care is vital for reducing and preventing maternal and child morbidity and mortality. This study was conducted to assess the levels and correlates of knowledge and attitude of preconception care among mothers who gave birth at public hospitals in Wolayita zone, South Ethiopia.

Methodology: A hospital-based cross sectional study was conducted from January 01-February 30, 2017 on a sample of 370 mothers who gave birth at public hospitals in Wolayita zone. The mothers were selected using systematic random sampling and interviewed using pretested structured questionnaires. Data were analyzed using bivariate and multivariable techniques.

Results: In this study 53% (95%CI: 47.8, 58.1) of mothers who gave birth at public hospitals had a good level of knowledge on preconception care, whereas 54.3% (95%CI: 49.2, 59.5) possessed positive attitude on preconception care. Women who have radio, planned pregnancy, and have participated in community meetings related to preconception care had significantly associated with good level of knowledge on preconception care. Ordinal regression showed that women have mobile phone had significantly higher odds of positive attitude on preconception care, whereas women have participated community meetings were decreased attitude on preconception care.

Conclusion: The finding of this study showed that level of women's knowledge and positive attitude towards preconception care is low compared to other studies. The hospitals shall be strengthened and supported community meeting. It would be beneficial if the local, regional and national health authorities work towards improving the knowledge and attitude of mothers towards preconception care as well as routine provision of preconception care within the mainstream health care system.

Key word: Knowledge, Attitude, Correlates, Preconception Care, Ethiopia

Introduction

Though both governments and civil societies in developing counties has given a priority for maternal and child health care service, the reduction of maternal and child morbidity and mortality is not at expected level, of which 77% of maternal,newborn,child death and stillbirth is preventable by creating platform at community, health center and hospital to apply essential packages (1).

Maternal and child health experts recommend that preconception care is a crucial intervention for better pregnancy outcome, but preconception care is not yet routinely practiced in developing countries, including Ethiopia(2).Preconception care for a couple is a set of provisions of biomedical,behavioral and social risk interventions by giving health promotion, disease prevention and by treating existing diseases before pregnancy ensues to improve the health outcome of women, newborns and children without inducing harm and anxiety(3, 4).

Worldwide maternal mortality ratio is estimated 216 per 100,000 live births in 2015, of which 99% occurred in low and middle-income countries. The highest risk of maternal deaths are in counties in south Asia and sub-Saharan Africa. The most substantial cause of maternal deaths are :obstetric hemorrhage accounts was 27%, preexisting medical conditions was 15%, hypertensive disease of pregnancy was 14%,infections /sepsis was 11%, unsafe abortion was 8%, and other indirect causes was 7% (1).The under-five mortality in 2015 was 42.5 per 1,000 live births (5, 6). In Ethiopia maternal mortality ratio is estimated 412 per 100,000 live births in 2016, and the under-five mortality is 67 per 1000 live birth in 2016(7).

Reproductive planning through preconception care could decrease 71% of the unwanted pregnancies, thereby eliminating 22 million unplanned births, 25 million induced abortions and 7 million miscarriages(8, 9). Lack of preconception care and low folic acid supplementation for women in developing countries might be increased the risk of neural tube defect in newborns by four time compared with developed countries, whereas taking folic acid reduces neural tube defect up to 80%(10).

The basic concept of preconception care is to advise reproductive-age women away from any negative health behaviors or conditions that might affect a future pregnancy(11). A reproductive

health plan reflects a person's intentions regarding the number and timing of pregnancies in the context of their personal values and life goals. This health plan will be increased the number of planned pregnancies and encouraged persons to address risk behaviors before conception, reducing the risk of adverse outcomes for both the mother and the infant(12, 13).

A study done in Kelantan, Malaysia found that 51.9% of women attending maternal health clinic had good level of knowledge and 98.5% had good positive attitude on preconception care(14).A study done in Egypt showed that 39.2% of pregnant women attending ANC at Ain Shams University Hospital knew about the role of folic acid supplementation in prevention of congenital anomalies(15). A community based study done in Ethiopia had revealed that 27.5% of reproductive age women had good level of knowledge on preconception care(16).

Studies recommended that antenatal care should start before conception for a better pregnancy outcome. Implementation of preconception care in maternity care unit is crucial to achieve the sustainable development goal (SDG) targets in relation to maternal, neonatal and child health, by policy makers and stakeholders. However, evidence on the level and correlates of knowledge and attitude towards preconception care among mothers in Ethiopia is very scarce. Hence, the aim of this study was to assess the levels and correlates of knowledge and attitude towards preconception care among mothers who gave birth at public hospitals in Wolayita Zone, south Ethiopia. The findings of this study are expected to be a useful input to the Ministry of Health of Ethiopia and local health authorities, stakeholders, health care providers, and the community.

Materials and methods

Study design and setting

A hospital-based cross sectional study was conducted from January 01-February 30, 2017 among mothers who delivered in public hospitals in Wolayita Zone and who were on immediate postnatal follow up. Wolayita zone is found in the Southern Nations, Nationalities and Peoples Region of Ethiopia. According to the 2007 census of Ethiopia, the total population of the zone was 1.7million. The public health institutions found in the zone are one referral hospital, four district hospitals and 70 health centers (5 urban and 65 rural). The total number of births from the five

hospitals in 2016 was 7445 (Otona Hospital 3511, Bonbe hospital 1228, Halale hospital 1142, Bitana Hospital 956, and Bale Hospital 608).

Study population and sampling procedures

Study populations were women who gave birth at public hospitals in Wolayita zone during the study period. Mothers who were critically ill during data collection period, had psychiatric problems, and referred to other hospitals were excluded.

The required sample size was calculated by using the software Epi Info version 7 with following assumptions: 95% confidence interval, an anticipated proportion of knowledge of preconception care of 10.4% based on a study in Nigeria(17), 4% of margin of error and a design effect of 1.5. Accordingly, the required sample size was 336. Adjusted for a non-response rate of 10%, the required sample became 374.

All public hospitals in Wolayita zone were included in the study and the sample size was allocated to the five public hospitals proportionally to the expected number of deliveries in each hospital. Within each hospital, mothers were selected by systematic random sampling technique. Monthly expected number of deliveries at public hospitals in Wolayita zone was 620, the sampling interval used value was 2.

Data collection

The data were collected using structured and pretested interview questionnaires at the postnatal ward of each hospital. The questionnaires were prepared by reviewing the existing literature and the demographic and health survey (DHS) questionnaires. First, the questionnaires were prepared in English and then translated to the local language (Wolaytigna), and back to English to check consistency. The questionnaires consisted of fifty-seven items: 13 sociodemographic items, 6 obstetric items, 4 items on source of information regarding preconception care, 23 knowledge items, and 11 attitude items. The attitude items were on a five point Likert scale (1-strongly disagree, 2-disagree, 3-neutral, 4-agree and 5- strongly agree). During the analysis, the Likert scale items were categorized into three response categories to compute women's attitude on preconception care: disagree (by merging 1-strongly disagree and 2-disagree), neutral, and agree

(by merging 4-agree and 5- strongly agree). All scores were summed and transformed into a percentage.

Data were collected through face-to-face interview by data collectors who have received training on basic emergency obstetrics and newborn care (BEmONC) and who can fluently communicate with the local language (Wolaytigna). The data collectors were trained for three days on data collection methodology and related issues prior to the start of data collection and were closely supervised during the data collection.

Statistical analysis

Data entry was done by using EPI Data 3.1 and exported to SPSS version 20.0 for analysis. Based on the 24 knowledge items, we computed an overall knowledge score for each study participant. Those who had knowledge score above the mean knowledge score were categorized as having "good level of knowledge" whereas those at or below the mean knowledge score were categorized as having "poor level of knowledge". Based on the 11 attitude items, we computed to sum up overall of the items of attitude into disagree, neutral and agree. Those who had agree score positive attitude on preconception care, whereas who had disagree score negative attitude on preconception care and who had neutral score was neither negative nor positive attitude .

The descriptive analysis was done to compute proportions for describing the basic characteristics of the study participants and over all status of knowledge and attitude on preconception care. Binary logistic regression was used to identify with the correlates of knowledge on preconception care. Adjusted odds ratios (AORs) with 95% confidence intervals (CIs) were used to judge the presence and strength of association between knowledge on preconception care and different factors. Ordinal logistic regression was used to identify correlates of attitude on preconception care. P value <0.05 is taken as statistically significant. Data are presented using text, tables and figure.

Result

Socio-demographic characteristic of study participants

A total of 370 mothers participated in the study with 99% response rate. The age of the participants ranged from 15 to 38 years with a mean (standard deviation) age of 25 (4) years. Wolayita was the dominant ethnic group (91.9%). Three hundred sixty three (98.1 %) were married. Majority (69.7%) of the participants were housewives and 34.9 % had completed primary school **(**table 1**).**

Table 2: Socio-demographic characteristics of mothers who gave birth at public hospitals in Wolayta Zone, South Ethiopia, February 2017

Variables	**(n=370)**	**Frequency**	**Percentage**
Age	15-19	26	7
	20-24	122	33
	25-29	149	40.3
	30-34	55	14.9
	35-38	18	4.9
Religion	Orthodox	112	30.3
	Muslim	10	2.7
	Protestant	238	64.3
	Catholic	8	2.2
	Jehovah witness	2	0.5
Ethnicity	Wolayita	340	91.9
	Amara	6	1.6
	Oromo	5	1.4
	Gamo	12	3.2
	Others®	7	1.9
Marital status	Married	363	98.1
	Single	5	1.4
	Widowed	2	0.5
Occupation of The mother	House wife	258	69.7
	Government employed	34	9.2
	Private employed	13	3.5

	Merchant	54	14.6
	Daily labor	7	1.9
	Farmer	4	1.1
Occupation of spouse	Farmer	123	33.2
	Government employed	80	21.6
	Private employed	45	12.2
	Daily labor	14	3.8
	Merchant	103	27.8
	Other	5	1.4
Residency	Urban	162	43.8
	Rural	208	56.2
Monthly income	<1313Ethiobirr((< 59.7USD)	198	53.5
	<1313Ethiobirr((< 59.7USD)	172	46.5
Family size	1-2	63	12.4
	3-5	369	72.4
	6-9	78	15.3
Educational status of woman	Non formal education	110	29.7
	Primary school complete	151	40.8
	Secondary school and above	109	29.5
Educational status of spouse	Non formal education	53	14.3
	Primary school complete	129	43
	Secondary school and above	158	42.7
Communication	Have radio	248	67
	Have Television	100	27
	Have Mobile	202	54.6
	Have health care providers relative	136	36.8
	Have regular community meeting regarding maternal health	89	24.1

	Have meeting with health extension worker	181	48.9
	Have health care providers friend	109	29.5
Time to take reach health institution	<30minute	205	55.4
	>30minute	165	44.6

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*1 USD was 22 Ethiopian birr

Income under extreme poverty <1.25USD per day

Obstetric characteristics of study participants

In two hundred ninety six (80%) of the mothers, the recent pregnancy was planned. The majority (65.1%) of respondents had used family planning before this pregnancy. Ninety eight (26.5%) of the mothers were primigravida and 272(73.5%) were multigravida, whereas 110(29.7%) were primipara and 260(70.3%) were multipara. Two hundred eighty three (76.5%) participants had ANC follow up for the recent pregnancy, of whom 152(41.1%) had four or more ANC visits (table 3).

Table 4: Obstetric history of mothers who gave birth at public hospitals in Wolayita Zone, South Ethiopia, February 2017

Variables	**(N=370)**	**Frequency**	**Percentage (%)**
Have family planning use history	Yes	241	65.1
	No	129	34.9
Gravida	Prim gravida	98	26.5
	Multigravida	272	73.5
Parity	Primipara	110	29.7
	Multipara	260	70.3
Is pregnancy plan	Yes	296	80
	No	74	20
ANC follow up	Yes	283	76.5
	No	87	23.5
Number of ANC visit	No visit	20	5.4
	1	9	2.4
	2	44	11.9
	3	130	35.1
	4	152	41.1
	More than four	15	4.1

Women's knowledge on preconception care

The minimum and maximum knowledge scores of the participants was 0 and 23 respectively. One hundred ninety six (53%) (95%CI: 47.8, 58.1) of them had good knowledge on preconception care (table 5). The main source of information regarding preconception care were health institutions (33%) and friends (26.5%) (figure 1).

Table 6: Knowledge on preconception care among mothers who gave birth at public hospitals in Wolayita Zone, South Ethiopia, February 2017

Variable (N= 370)	Frequency		Percent
Avoid bad habits when planned to pregnancy	Yes	311	84.1
	No	59	15.9
Adjust their life when planned to pregnancy	Yes	324	87.6
	No	46	12.4
Avoid smoking when planned to pregnancy	Yes	281	75.9
	No	89	24.1
Avoid drinking alcohol when planned to pregnancy	Yes	291	78.6

	No	79	21.4
Avoid multiple sexual partners when planned to pregnancy	Yes	303	81.9
	No	67	18.1
Test HIV/AIDS when planned to pregnancy	Yes	302	81.6
	No	68	18.4
Take folic acid and multivitamins to prevent neural tube defects	Yes	210	56.8
	No	160	43.2
Take iron sulfate to prevent anemia?	Yes	293	79.2
	No	77	20.8
Avoid illicit drugs when planned to pregnancy	Yes	262	70.8
	No	108	29.2
Stop over exercising when planned to pregnancy	Yes	287	77.6
	No	83	22.4
Stop caffeine drinking when planned to pregnancy	Yes	110	29.7
	No	260	70.3
Stop mercury from consumption of seafood when planned to pregnancy	Yes	99	25.9
	No	274	74.1
Away from Pesticides/insecticides chemicals when planned to pregnancy	Yes	217	58.6
	No	153	41.4
Away from contact with substances like lead in paints when planned to pregnancy	Yes	102	27.6
	No	268	72.4
Away from exposure to occupational hazards when planned to pregnancy	Yes	281	75.9
	No	89	24.1
Maintain body weight when planned to pregnancy	Yes	241	65.1
	No	129	34.9
Take balance diet when planned to pregnancy	Yes	266	71.9
	No	104	28.1
Check STI when planned to pregnancy	Yes	301	81.4
	No	69	18.6
Take ordinary multivitamins when planned to pregnancy	Yes	257	69.5
	No	113	30.5
Take ordinary vitamin D when planned to pregnancy	Yes	112	30.3
	No	258	69.7
Take omega 3 vitamins when planned to pregnancy	Yes	18	4.9
	No	352	95.1
Take ordinary zinc when planned to pregnancy	Yes	18	4.9
	No	352	95.1
Street drugs when planned to pregnancy	Yes	242	65.4
	No	128	34.6

Women's attitude on preconception care

Among the total of 370 respondents, 300(81.1%) of the mothers agreed that a hospital setting is the best place to provide preconception care and 277(74.9%) of women also agreed that preconception care is an important health issue for women of child bearing age. Besides, 54(14.6%) of women agreed that, there is not enough time to plan to get a preconception care. Overall, 201 (54.3%) (95%CI: 49.2%, 59.5%) of the mothers had positive attitude on

preconception care, 23(6.2%) (95%CI: 4.1%, 8.9%) neutral on preconception care and 146(39.5%) (95%CI: 34.6%, 44.6%) had negative attitude on preconception care (table 7).

Table 8: Attitude towards preconception care among mothers who gave birth at public hospitals in Wolayita Zone, South Ethiopia, February 2017

Parameter (N= 370)	**SA&A**		**Neutral**		**SD&D**	
	N	%	N	%	N	%
Preconception care does not have any effect on pregnancy outcome	160	43.2	53	14.3	157	42.4
Preconception care is an important health issue for women of child bearing age	277	74.9	57	15.4	36	9.7
A dedicated clinic for preconception care is a luxury service	209	56.5	56	15.1	105	28.4
A hospital setting is the best place to provide preconception care	300	81.1	33	8.9	37	10
Preconception care is a high priority all mother to plan pregnancy	241	65.1	74	20	55	14.9
I am not the most suitable person plan to get preconception care	69	18.6	40	10.8	261	70.5
There is not enough time to plan to get a preconception care	54	14.6	43	11.6	273	73.8
Health institutions exercise preconception care	96	25.9	41	11.1	233	63
Do you think high-risk mothers only start preconception care when planned to pregnancy	106	28.6	28	7.6	236	63.8
History congenital anomalies only use preconception care	113	30.5	33	8.9	224	60.5
Preconception care depends on health care providers willingness	262	70.8	46	12.4	62	16.8

SA: Strongly agree**,** A: agree, SD: strongly disagree and D: disagree

Correlates of knowledge and attitude on preconception care

Results of the multivariable logistic regression showed that women had radio (AOR: 2.91; 95% CI: 1.69, 5.43), planned pregnancy counterpart (AOR: 5.76; 95% CI: 2.84, 11.67), and had participated in community meetings related to preconception care (AOR: 2.96; 95% CI: 1.62, 5.43) had significantly higher odds of good knowledge level on preconception care (table 9).

On the other hand, multivariable ordinal regression showed that women had mobile phone (AOR: 2.17, 95 % CI: 1.31, 3.59), and had participated community meetings related to preconception care (AOR: 0.36, 95 % CI: 0.22, 0.60) had decreased odds of positive attitude on preconception care (table 10).

Table 11: Correlates of knowledge on preconception care among mothers who gave birth at public hospitals in Wolayita Zone, South Ethiopia, February 2017

Variable	knowledgeable(N= 196)	Non knowledgeable (N=174)	COR 95 % CI	AOR 95 % CI
Do you have radio				
Yes	159 (43)	89(24.1)	4.10(2.58,6.54) *	2.91(1.69,5.43) *
No	37(10)	85(23.4)	1	1
Do have health care providers' relatives				
Yes	88(23.8)	48(13)	2.13(1.384,3.306)*	1.29(0.74,2.26)
No	108(29.2)	126(34.1)	1	
Is pregnancy planned				
Yes	183(49.5)	113(30.5)	7.60(3.995,14.455)*	5.76(2.84,11.67) *
No	13(3.5)	61(16.5)	1	1

do you have community meeting related to preconception care				
Yes	67(18.1)	22(5.9)	3.588(2.100,6.132) *	2.96(1.62,5.43) *
No	129(34.9)	152(41.1)	1	1
Do you have health care providers friends				
Yes	75(20.3)	34(9.2)	2.552(1.591,4.094) *	1.36(0.74,2.47)
No	127(34.3)	140(37.8)	1	
Educational status of spouse				
Non formal education	14(3.8)	39(10.5)	0.301(0.151,0.597)	
Primary school	96(25.9)	63(17)	1.28(0.817,1.993) *	1.31(0.73,2.36)
Secondary and above	86(23.2)	72(19.5)	1	1

* P<0.05

Table 12: Correlates of attitude towards preconception care among women who gave birth at public hospitals in Wolayita Zone, South Ethiopia, February 2017

Variable	Attitude			COR 95 % CI	AOR 95 % CI
	Disagree(N=146)	Neutral(N=23)	Agree(N=201)		
Residency	Rural		1.94(1.29,2.93) *		1.49(0.91,2.44)
	Urban		1		1
Mobile	Yes		2.29(1.52,3.44) *		2.17(1.31,3.59) *
	No		1		1
Do you have community meeting related to maternal health	Yes		0.35(0.22,0.57) *		0.36(0.22,0.60) *

	No	1	1
Spouse education	Non formal education	0.58(0.38.0.90)*	1.32(0.63,2.76)
	Primary school complete	0.82(0.44,1.52) *	0.8(0.48,1.34)
	Secondary school and above	1	1

* P<0.05

Discussion

Implementation of preconception care at maternity unit is one of the strategies to alleviate and lessen maternal and child morbidity and mortality; however, it is not yet routinely practice in resource-limited countries. The finding of this study revealed that level of knowledge on preconception care among women who gave birth at public hospitals in Wolayita Zone is 53%.

This finding is higher than the study done in North West Ethiopia is (27.5%)(16), Sudan is (11.1%) (18), Nigeria is (2.5%)(8),Iran is (10.4%)(19), Saudi Arabia is (37.9%)(20), United Arab Emirates is (46.4%) (21), and Turkey is (46.3%) (22).The possible explanation higher level of knowledge in this study could be the study conducted at post natal ward, at this time the woman eagerly want to know everything's related to pregnancy.

Whereas it is consistent with study done in Kelantan, Malaysia is (51.9%)(14) and in Qatar is (53.7 %) (23). However, this fining is lower than the study done in Canada is 70%(24),Jordan is (85%)(25),British Colombia is 71%(26), Saudi Arabia is (84.6%)(27) and in the USA among low income Mexican American group is (76%)(28).The possible explanation could be low level of knowledge due to health sector infrastructure difference, socioeconomic difference, lack of health wellness clinic in the study area, lack of preconception service across the country ,lack of promotion on preconception care by mass media, and low commitment of health care providers due to high load of clients.

In this study the correlates of knowledge on preconception care were found to be possession of transistor radio, planned pregnancy, and having participated in community meetings related to preconception care. Women who had radio had three times higher odds to have good level of

knowledge on preconception care. This finding is inconsistent with the study done Amhara region and Nigeria (8, 16). Similarly, women who planned the recent pregnancy had six times higher odds to have good level of knowledge on preconception care which is consistent with the finding in Brazil(29).

In addition, women who have participated in community meetings related to preconception care had three times higher odds of having good level of knowledge on preconception care. This is might be due women shared their positive and negative outcome of childbirth experience and prevention mechanism.

In this study 53.3% of the mothers were found to have positive attitude on preconception care. This finding is lower than the results of previous studies in different part of the world: Kelantan, Malaysia (98.5%) (14) and USA (98%) (28). The difference might be due availability and accessibility of the service, in better socioeconomic position in Kelantan, Malaysia and USA.

Women who have mobile cell phones have more than twice increased odds of positive attitude on preconception care; however, women who have participated in community meetings related to preconception care had decreased odds of positive attitude on preconception care.

The strength of this study relative to previous study is incorporating relevant variables, which were not addressed previously such as having planned pregnancy, possession of transistor radio and participating in community meetings related to preconception care. One possible limitation of this study is the fact that it didn't include the husbands or spouses of the women. Results could also be to some extent affected by recall and social desirability biases.

Conclusion

Level of women's knowledge and positive attitude on preconception care among women who gave birth at public hospitals is low compared with other studies. Possession of transistor radio, having a recent planned pregnancy and having participated in community meetings related to preconception care are correlates of good level of knowledge on preconception care. Besides, possession of mobile phone and having participated in community meetings are correlates of positive attitude on preconception care. It would be beneficial if the local, regional and national

health authorities work towards improving the knowledge and attitude of mothers towards preconception care as well as routine provision of preconception care within the mainstream health care system.

Declarations

Abbreviation

AOR- Adjusted Odds Ratio

BEmONC- basic emergency obstetrics and newborn care

Ethical approval and consent to participant

Ethical clearance was obtained from the Institutional Review Board at the College of Medicine and Health Sciences of Hawassa University. Permission to conduct the study was obtained from Wolayita Zone Health Office and management of the respective public hospitals. Informed verbal consent was obtained from the respondents before participation. Confidentiality was assured throughout the study by use of code numbers instead of individual names for identification.

Consent for publication

Not applicable.

Availability of data and materials

All data on which this article is based are included within the article.

Competent interests

The authors declare no conflict of interest

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Authors' contribution

ZY conceived of and designed the study, participated in data collection, analyzed the data and drafted the paper. ZT, AA, MS, GB, KT, SM and ZK critically reviewed the study protocol, participated in data acquisition and analysis and reviewed the draft manuscript. All authors read and approved the final manuscript.

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Paper context

We conducted cross-sectional study on levels and correlates of knowledge and attitude on preconception care at public hospitals in Wolayita Zone, South Ethiopia to assess correlates of knowledge and attitude on preconception care who gave birth at public hospitals. This finding showed us 53% of women had good level of knowledge and 54.3% women had positive attitude on preconception care. Besides that world leaders, international donors and relevant stake holders has given attention on maternal health and child health service, still there is big number of maternal and neonatal morbidity and mortality are happened. This finding suggest that accountable bodies are implementing strategies on preconception care to improve women's knowledge ant attitude on preconception care and to utilize it.

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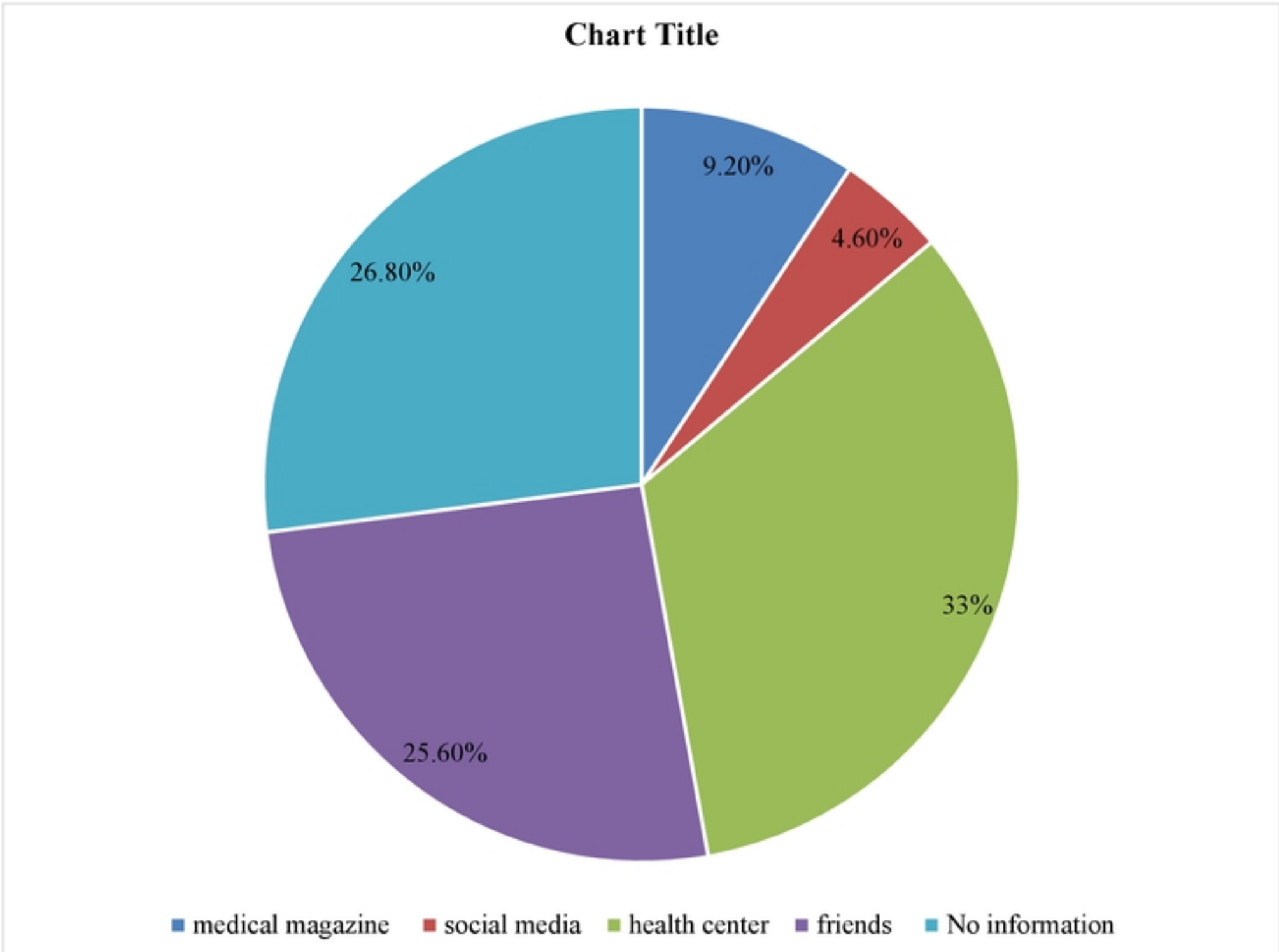

Figure 1: Source of information regarding preconception care among mothers who gave birth at public hospitals in Wolayita Zone, South Ethiopia, February 2017

Figure