Knowledge and Attitude Towards Preconception Care and Associated Factors Among Health Care Providers in North Wollo Zone, Amhara Region, Ethiopia, 2020

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Research

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Abstract

Introduction: preconception care is provision of biomedical, behavioral, and social health interventions to reproductive age women and their partners before pregnancy to improve maternal and child health. Its package was developed in 2012. Preconception care not well studied in Ethiopia particularly in the study area.

Objective: The aimed to assess the level of knowledge and attitude towards preconception care and associated factors among healthcare providers in North Wollo Zone, 2020.

Methods: institution based cross sectional study on 536 health care providers was conducted. Multi stage sampling technique was used. Simple random sampling technique was employed to select the health institutions and study participants. Data were collected; structured, pre tested and self-administered questionnaire. Binary logistic regression used to compute descriptive statistics. P-value < 0.05%, OR with 95% CI used for presence and strength of significant association.

Result: This study revealed that 49.1% and 44.2% of health care providers had good knowledge and favorable attitude towards preconception care, respectively. Variables; higher monthly salary [AOR 1.9: 95% CI: 1.1-3.2)], midwifery as profession [AOR: 2.1(95% CI: 1.1-3.7)], library in the institution [AOR: 2.6 (95% CI: 1.2-5.8)], ever heard about preconception care [AOR: 5.6 (95% CI: 3.0 - 10.4)] on knowledge and degree & above educational status [(AOR: 2.1 (95% CI: 1.4-3.1)], good knowledge [AOR: 2.3 (95% CI: 1.3-3.3)] and ever read guideline [AOR: 2.0 (95% CI: 1.2-3.3)] on favorable attitude of preconception care were significantly associated factors respectively

Conclusion and recommendation: nearly half of the participants had poor knowledge and unfavorable attitude on preconception care due to mentioned factors and can be averted by making the institutions to have library, health care providers should to read about preconception care.

Plain Summary

Preconception care is provision of biomedical, behavioral, and social health interventions to reproductive age women and their partners before pregnancy to improve maternal and child health. It includes screening and intervention on major reproductive health problems. It is not well studied in Ethiopia particularly in the study area. The aim of the study was to assess the level of knowledge and attitude towards preconception care and associated factors among healthcare providers in North Wollo, Ethiopia. Institution based cross sectional study on 536 health care providers was conducted. Multi stage sampling technique was used. Simple random sampling technique was employed to select the health institutions and study participants were proportionally allocated for each selected facilities. Data were collected by trained data collectors using a structured, pre tested and self-administered questionnaire. Binary logistic regression was used to compute descriptive statistics such as number, frequency and percentage distribution of study variables. Variables less than 0.25 were eligible for multivariable logistic regression. P-value < 0.05%, Odds ratio with 95% CI used for presence and strength of association. This study revealed that 49.1% and 44.2% of health care provider's good knowledge and favorable attitude towards preconception care, respectively. This study revealed that 49.1% and 44.2% of health care providers had good knowledge and favorable attitude towards preconception care, respectively. Variables; higher monthly salary [AOR 1.9: 95% CI: 1.1–3.2)], midwifery as profession [AOR: 2.1(95% CI: 1.1–3.7)], library in the institution [AOR: 2.6 (95% CI: 1.2–5.8)], ever heard about preconception care [AOR: 5.6 (95% CI: 3.0–10.4)] on knowledge and degree & above educational status [(AOR: 2.1 (95% CI: 1.4–3.1)], good knowledge [AOR: 2.3 (95% CI: 1.3–3.3)] and ever read

guideline [AOR: 2.0 (95% CI: 1.2–3.3)] on favorable attitude of preconception care were significantly associated factors respectively. In conclusion nearly half of the participants had poor knowledge and unfavorable attitude on preconception care due to mentioned factors and can be improved by making the institutions to have library, internet and reading habit of care providers.

Background

World health organization defines preconception care as the provision of biomedical, behavioral and social health interventions to couples before pregnancy. The aim is improving maternal and child health, and reducing factors contribute to poor maternal and child health outcomes in both the short and long term. Preconception care (PCC) reduce maternal and childhood mortality and morbidity in both high and low income countries (1, 2).

Areas addressed by the preconception care packages are screening and intervention on chronic illness, nutritional conditions, genetic and environmental conditions, infertility, violence, unintended pregnancy, sexually transmitted infections (STI) including human immunodeficiency virus (HIV), mental health, substance use, vaccine preventable disease and female genital mutilation (3–5).

Children have the right to survive and grow in a good health status; couples have also the right to be physically, psychologically and socially healthy. For this to happen, strong public health programmes in the life-course perspective. But the reality is that such programmes do not exist or are very weak in most low and middle income countries (6).

There was a global consensus which held to develop preconception care in February 2012. Different stakeholders held a meeting on PCC services. (1, 7). Data shows there is better knowledge and implementation in developed countries, where as there is low knowledge, attitude of health care providers in some Asian and all African countries on PCC (8). It is provided in some African countries like Egypt, Nigeria, Sudan, Kenya and South Africa. The implementation of the service in Sudan is 9% (9), the level of knowledge of health care providers on PCC among Egyptian primary health care givers is 22% (10) and about 68.1–92% for different types of services in South African primary care givers (11).

In Ethiopia PCC service is not included in the health care provider's pre-service training curriculum except obstetrics/ gynecology specialty (12). Despite the availability of a number of evidence based preconception care clinical guidelines and WHO recommendations, most of the developing countries including Ethiopia have not well implemented PCC policy and not started implementing preconception care. (13).

Factors affecting the level of knowledge and attitude of HCPs on PCC service includes provider's level of education, work experience and type of profession, the type of institution, presence of preconception care resources like guideline, protocol, checklist and PCC plan, presence of library in the institution, internet access, working department and trainings accessibility (14–17). In Ethiopia the knowledge and attitude of HCPs on PCC service is low in general as compared with other economically developed countries (13, 15, 16). The knowledge and attitude among health care providers on PCC vital to develop national PCC guideline and Education information communication and behavioral change communication for health care providers and the community(13, 16).

Preconception care is an important component of maternal health care to improve MCH outcomes and addressing SDG plan in 2030. The aim of this study was to assess the level of knowledge and attitude of preconception care

and associated factors among health care providers in North Wollo Zone.

Methods

Study Area, Period and population

The study was conducted from 03/07/2020–30/07/ 2020 in North wollo zone health institutions, Northern Ethiopia. The capital city of this zone is Woldiya. It is located 310 km in the North-East of Bahir Dar and 521 km in the North-East of Addis Ababa. The study area had 12 Woredas (2 urban and 10 rural Woredas) consisting of 278 health posts, 35 primary clinics, 5 medium clinics, 76 health centers, 3 primary hospitals and 2 general hospitals with the total health care providers of all professional type in the Zone was 3195. (18). All health care providers in the selected health institutions during study period were included in the study and those having long term training, permission leaves, and having illnesses were excluded in the study.

Study Design

Institutional based cross sectional study design was conducted.

Sample Size Determination

The sample size for the first two specific objectives was calculated by a single population proportion formula using Epi Info software version 7.2.2.6. By using the assumption of Confidence level = 95%, 5%Margin of error = d, 1.5 design effect (DEFF), and P = proportion for level of knowledge and attitude of HCPs to PCC from recent study (the level of knowledge and attitude were estimated to be 31% (13) and 59% (12) with 10% non-response rate gives 491 and 551 respectively.

The sample size for factors affecting knowledge and attitude of HCPs on PCC calculated using a double population proportion formula using some selected significant variables and Power = 80%, as follows:

Table 1
Sample Size Calculation using Factors of Knowledge and Attitude of Preconception Care among Health Care Providers, 2020

Objective	Variables	Total HCPs	P1	P2	Sample size	10% NR	Sample size	DEFF	Total sample	Reference
3	Level of education	3195	74.3	56.3	238	24	262	1.5	393	(13)
	Presence of library		67.1	47.4	216	22	238		357	
	Type of institution		62.7	46.7	328	32	360		540	
4	Work experience		11.2	23.4	332	33	365		548	(16)
	Level of education		10.3	24.7	240	24	264		396	

- The final calculated sample size was 551 HCPs including non response rate.

Sampling Technique

Multi stage sampling technique was applied. First the facilities were stratified in to general hospitals, primary hospitals, health centers, medium clinics, primary clinics, and health posts. Then 20% of the facilities were selected in each stratum using simple random sampling (SRS) method. Finally the participants were allocated proportionally in each selected facilities and each sample was selected using SRS technique. ???

Operational Definitions

Good knowledge about PCC: if the respondents correctly respond 60% or more of the knowledge questions (13).

Favorable attitude towards PCC: If the sum of scores of the level of agreement questions for respondents 60% or more of the possible maximum score (13).

Data Collection Procedure

Structured, pre-tested and self-administered questionnaire was used through trained data collectors as a data collection tool. The questionnaire was adapted from a previously validated and known to be reliable source which accessed online as “Andarg-Ethio PCC-KAP-Questionnaire for HCP”. Its content validity index was 92.4%, reliability was checked with Cronbach’s **α** test and demonstrated a score of 0.945 (15).

The questionnaire had six sections with six questions related to socio-demographic characteristics, ten questions related to individual and professional factors, seven questions related to institutional factors, three question related to client related factor twenty four questions related to knowledge about PCC, seventeen items related to attitude of HCPs with likert scale of one to five scales: scale 1 shows strongly disagree on idea to 5 shows strongly agree. Then the sum of the level of agreement score was categorized in to favorable and unfavorable based on cut point of 60% from the possible maximum score.

Data Quality Control

Structured and pretested questionnaire was used for data collection. Training was provided for one day to both the data collectors and supervisors about technique of interviewing, communication skill, the ethical aspect in keeping the information confidentiality was also another focus of the training, the time of data collection, timely collection and reorganization of the collected data and submission on due time. The questionnaire was pretested on 5% of the sample size in other unselected institutions, out of the study area, appropriate modifications were taken accordingly. Data collectors were supervised regularly by the supervisors and by the principal investigator too at the time of data collection each day to communicate and solve any challenges that could happen during the data collection process. The collected data was checked for completeness, accuracy and clarity on daily bases.

Data Processing and Analysis

For data completeness all the questionnaires were checked visually each day at the end of data collection, coded and entered into EPI data version 3.1 then it was exported to STATA version 14 software packages for analysis. Binary logistic regression was used to identify the associations between the dependent and independent variables. Those variables with p-value of < 0.25 on bivariate binary logistic regression analysis were transferred to multivariable logistic regression. The original Bloom’s cutoff point was used to determine the level of knowledge and attitude of the respondents; (less than 60% knowledge/attitude score was labeled as low level of knowledge/ negative attitude, 60–80% intermediate level of knowledge/ attitude and more than 80% as high level of knowledge/positive attitude) (19). For analysis, those who had intermediate and high knowledge and attitude were recoded as good knowledge and favorable attitude.

The degree of association between dependent and independent variables was assessed using odds ratio with 95% confidence interval and variables with p value < 0.05 was taken as statistically significant. Tables and graphs were used to describe the results. The goodness of fit of the models was tested by Hosmer and Lemeshow test.

Result

Socio-Demographic Characteristics of the Respondents

In this study 536 respondents were participated with 97.3% of response rate. The mean age of the study participants was 29.6 years (SD ± 5.8). Two hundred eight six (53.4%) were male respondents. Three hundred fifty one 351(65.5%) of the respondents were married and 296 (55.3%) were degree and above holders respectively (Table 2).

Table 2
Socio demographic Characteristics of Knowledge and Attitude of PCC among Health Care Providers, Ethiopia, 2020 (n = 536).

Variables		Frequency	percentage
Sex	Male	286	53.4
	Female	250	56.6
Age (in complete years)	20–24	76	14.2
	25–29	241	44.9
	30–34 yrs	133	24.8
	35 & above	86	16.0
Religion	Orthodox	408	76.1
	Muslim	119	22.2
	Protestant	9	1.7
Marital status	Single	172	32.1
	Married	351	65.5
	Divorced/ Widowed/ Separated	13	2.4
Educational status	Diploma	240	44.8
	Degree & above	296	55.2
Work experience	< 5 yrs	277	51.7
	> 5 yrs	259	48.3
Monthly income	< 4015 ETB	181	33.8
	4015–4791 ETB	100	18.7
	> 4791 ETB	255	47.5

Professional or Individual Related Characteristics of Respondents

Majority, 201(37%) of the respondents are nurses in profession and only 25 (5%) of the respondents ever look anyone who provide the PCC service to the clients. More than three fourth, 442 (84.5%) of the respondents had smart phone of which 434 (98.2%) uses their smart phone as a source of medical information (Table 3).

Table 3
Professional and individual characteristics of knowledge and attitude of PCC care among HCPs in North wollo zone, Ethiopia, 2020 (n = 536).

Variables		Frequency	percentage
Profession	MD	33	6.2
	HO	85	15.9
	Nurse	201	37.5
	Midwifery	91	17.0
	HEW	54	10.1
	Others*	72	3.4
Ever look anyone who provide the service	Yes	25	4.7
	No	511	95.3
Smart phone ownership	Yes	442	82.5
	No	94	7.5
Internet access	Yes	432	97.7
	No	10	2.3
Use smart phone for medical information	Yes	434	98.2
	No	8	1.8
Read PCC guideline	Yes	102	19.0
	No	434	81.0

* Professionals like lab, pharmacy, psychiatric nurses, radiology, optometrists, environmental health, and anesthesia

Institution Related Characteristics

About half, 374 (50.4%) of the respondents had been working in health center, 195 (36%) in hospital, 54 (10%) health post, 11 (2%) medium clinic and 6 (1%) primary clinic. Only 60 (11%) of the institution had internet access and 70 (13%) had library but all institutions had no PCC guideline, policy procedures, procedural document and plan.

Client Related Characteristics

From the total participants 453 (84.5%) HCPs visited less than 45 clients per day in their service room. Only 9 (1.7%) of the respondents had contacted with clients who wanted PCC service. Majority (56%) of the clients had contacted for preconception laboratory examinations like blood group and rhesus disease as well as HIV testing.

Level of Knowledge on Preconception Care

There were 20 knowledge questions with true or false answers. The minimum knowledge score of the respondents was 4 points and the maximum score was 19 points from the possible maximum 20 points of the knowledge score. The mean score of HCP's knowledge on PCC service was 12.33 points (SD ± 2.78). Two hundred seventy three (50.9%) of the HCPs had low knowledge, 243(45.3%) had medium knowledge and 20(3.7%) had high knowledge on PCC service. After merging medium and high knowledge as good level of knowledge 273 (50.9%) of the HCPs had poor knowledge and 263 (49.1%) (95% CI: 44.8%-53.3%) had good knowledge about PCC.

Level of Attitude on Preconception Care

There were 17 questions which used to assess the level of agreement of the respondents towards PCC service using likert scale. The minimum score of the respondent was 21 and the maximum was 84. The mean score of HCP's attitude towards PCC service was 52.03 (SD ± 7.66). Two hundred ninety nine (55.8%) of the HCPs had negative attitude to this service, 227 (42.4%) had intermediate attitude and only 10 (1.9%) had positive attitude to PCC service. After merging intermediate and high attitude to favorable attitude of HCPs to PCC service, more than half, 299 (55.8%) of the HCP had unfavorable attitude and 237 (44.2%) (95% CI: 39.9–48.4%) had favorable attitude towards PCC service.

Factors Affecting the Knowledge of Heath Care Providers on Preconception Care

Respondent’s sex, religion, monthly salary, type of profession, work experience, ever read PCC guideline, presence of library in working institution, presence of internet in working institution, heard about PCC, client number and ever look anyone who practice PCC service were found to be significantly associated at p- value of < 0.25 in binary logistic regression and entered to multiple logistic regression for further analysis and variables. Monthly salary, type of profession, presence of library in the working institution, and ever heard about PCC was found to be statistically significant at p-value of < 0.05.

In this study monthly salary was found to be significantly associated with outcome variable knowledge. HCPs whose monthly salary > 4791 ETB were 1.9 times more likely to have good knowledge than HCPs whose monthly salary was < 4015 [AOR: 1.9 (95% CI 1.1–3.2)]. According to the profession of respondents midwives were 2.1 times knowledgeable than nurses [AOR: 2.1 (95% CI: 1.1–3.7)]. Health care providers who work in an institution which had library were 2.6 times knowledgeable than those whose institution had no library [AOR: 2.6: (95% CI 1.2–5.8)]. Those HCPs who ever heard about this service were 5.6 time knowledgeable than HCPs who ever heard about the service [AOR: 5.6 (95% CI 3.0-10.4)] (Table 4).

Table 4
Factors Associated with Knowledge of PCC among Health Care Providers in North Wollo Zone, Ethiopia, 2020.

Variables		Knowledge		COR (95% CI)	AOR (95% CI)
		Good	Poor		
sex	Male	146	140	1.2(0.9–2.3)	1.2(0.8–1.7)
	Female	117	133	1	1
Religion	Orthodox	208	200	1.4 (0.4–0.9)	1.3(0.3–4.9)
	Muslim	51	68	1	0.9 (0.2–3.7)
Educational status	Diploma	82	158	1	1
	Degree &above	181	115	0.3 (0.3–1.3)	3.0(2.1–4.3)
Monthly salary	< 4015ETB	50	121	1	1
	4015–4791 ETB	165	138	2.8(1.2–3.2)	1.5 (0.8–2.7)
	> 4791 ETB	48	14	8.3(1.2–2.8)	**1.9(1.1– 3.2) ***
Profession	MD	23	5	5.3 (2.1–13.5)	1.3(0.4–3.8)
	HO	54	31	2.1(1.2–3.5)	1.1(0.6–2.1)
	Nurse	92	109	1	1
	Midwives	65	26	2.9 (1.7-5.0)	**2.1(1.1–3.7)***
	HEWs	7	47	0.2(0.1–0.4)	**0.3(0.1–0.8)***
Work experience	< 5 years	130	147	1	1
	>= 5 years	133	126	0.8 (0.4–1.1)	1.2(0.8–1.7)
Heard about PCC	Yes	92	10	12.5(6.4–19.3)	**5.6 (3.0-10.4)****
	No	184	250	1	1
Use of smart phone for medical information	Yes	241	201	3.93 (0.3–0.9)	1.5(0.8–2.8)
	No	22	72	1	1
Type of institution	Hospital	127	68	12.5(0.6-1.0)	2.3(0.6–3.4)
	HC	119	151	1	**1**
	Private clinic	10	7	0.2(0.1–0.8)	1.8(0.7–4.9)
	Health post	7	47	0.4(0.3–0.9)	0.2(0.8–2.4)

NB: COR = Crude odds ratio, AOR = Adjusted odds ratio*p-value < 0.05, **p-value < 0.01

Presence of library in the institution	Yes	60	10	7.8 (3.9–15.6)	**2.6 (1.2–5.8)***
	No	203	263	1	1
Client number	<=45	219	234	0.8(0.3–1.2)	1.2(0.7–1.9)
	> 45	44	39	1	1
NB: COR = Crude odds ratio, AOR = Adjusted odds ratio*p-value < 0.05, **p-value < 0.01					

Factors Affecting the Attitude of Health Care Providers towards Preconception Care

Age of respondents, religion, work experience, educational status, monthly salary, ever looking anyone who provide PCC service, read PCC guidelines of any country, presence of internet as well as library in the working institution and knowledge were found to be significantly associated at p- value of < 0.25 in binary logistic regression. After multivariable logistic regression educational status, knowledge and ever read about PCC were found to be statistically significant at p-value of < 0.05.

Health care providers who had degree and above had 2.1 times favorable attitude than those diploma holding [AOR: 2.1 (95% CI: 1.4–3.1)] as well as good knowledge on PCC were 2.3 more likely to have favorable attitude than those who had poor knowledge [AOR: 2.3 (95% CI: 1.3–3.3)] and those who ever read guideline on PCC service were 2.0 times more likely to have favorable attitude than whom never read about PCC service [AOR: 2.0 (95% CI: 1.2–3.3)]. (Table 5).

Table 5
Factors Associated with Attitude towards PCC among Health Care Providers in North Wollo Zone, Ethiopia, 2020.

Variables		Attitude		COR (95% CI)	AOR (95% CI)
		favorable	unfavorable		
Sex	Male	132	154	1	1
	Female	105	145	1.2(0.5–2.2)	0.9(0.6–1.3)
Age in complete years	20–24	24	52	1	11
	25–29	107	134	1.7(1.0–3.0)	1.7(0.9–2.9)
	30–34	61	72	1.8(1.0-3.3)	1.8(0.3–3.3)
	>=35	45	41	2.8(1.3–4.5)	2.3(0.9–4.4)
Educational status	Diploma	74	166	1	1
	Degree and above	163	133	2.8(1.9–2.9)	**2.1(1.4–3.1)****
Religion	Orthodox	190	218	0.6(0.4–0.9)	4.2(0.8–22.1)
	Muslim	45	74		3.0(0.5–16.8)
	Protestant	2	7	1	1
Ever look anyone who practice PCC	Yes	18	7	6.3(0.1–1.1)	3.4(1.4–8.4)
	No	119	292	1	1
Clients contact to PCC	Yes	3	6	0.63(0.6–11.3)	1.5(0.4–6.4)
	No	234	293	1	1
Read about PCC	Yes	69	33	1	1
	No	168	266	3.3 (2.1–5.2)	**2.0(1.2–3.3)****
Presence of Internet in the institution	Yes	39	21	2.6(0.2–1.1)	2.6(0.4–4.6)
	No	198	278	1	1
Presence of library in the institution	Yes	42	28	2.1(0.9–5.2)	2.1(0.2–3.5)
	No	195	271	1	1
Knowledge of PCC	Poor	83	190	1	1
	Good	154	109	3.2(2.3–	**2.3(1.5–**

		4.6)	**3.3)****

Discussion

The finding of the study revealed that 49.1% (95% CI: 44.8–53.3%) of healthcare providers had good level of knowledge on preconception care which is consistent with the finding reported in Awi zone which showed 52% (20). However, higher than the study done in Hawassa City (31%) (13) and lower than in Addis Ababa (69.2%) (16) and South Africa (55%) (11). This difference may be due to time difference between the studies, participant's academic difference, absence of PCC guideline and plan (for poor knowledge) in studied institutions and implementation of PCC service in other counties like South Africa (for good knowledge).

Health care providers who earn better monthly salary had good level of knowledge. Which is in line with a study conducted in Hawassa, (13) and Awi (20) in Ethiopia. Knowledge difference among higher and lesser salaries may not afford to have smart phones to access medical information and unable to pay for internet.

Types of profession have significant difference on knowledge of preconception care among care providers. Midwives have good knowledge than HEW on PCC service. It is supported by the study done in Addis Ababa (which indicated internists and gynecologists had different level of knowledge), Iran which revealed all physician and midwives (100%) aware on PCC and other HCPs lower awareness about PCC (21), study done in Netherlands which revealed 95% of midwives had good PCC knowledge where as other providers had lower knowledge score (22). This may due to closeness of PCC service elements to their profession and working department, presence of some of the PCC services like family planning and inter-pregnancy spacing, prevention of mother to child transmission of HIV, nutrition, iron and folic acid supplementation in some professions curriculum.

In the present study HCPs who had been working in health institutions those having library were knowledgeable than those who have no library. This result is in line with the study conducted in Hawassa, Ethiopia (13), this is because of the reason that different books, training manuals and guidelines will kept in library; motivate HCPs to read medical information and may encourages reading habit and access new information thereby improve their knowledge.

In this study the attitude towards PCC was favorable in 44.2% (95% CI: 39.9–48.4%) of HCPS. Almost similar with study done in Addis Ababa 48.5% (16), however, it is lower than studies conducted in Hawassa Ethiopia 59% (23) and Belgium 85% (24) and USA 87.3% (25). This may be due to accessibility of IEC/BCC materials, internet, and soft copy manual as well as guidelines.

Health care providers whose educational status of degree and above holders was more likely to have favorable attitude towards PCC service than the counterparts. This result is supported by study conducted in Belgium (26) and other study in this country also revealed lower educational status of the community pharmacies as a barrier for positive attitude of PCC services (24). Educational level affects the health care provider's attitude on preconception care.

Study participants in this study who ever read PCC guideline had favorable attitude. This is true that PCC service guideline, implementation rules and importance of PCC service elements have been clearly stated in WHO and accessed online as well as the service had been implemented in developed and few developing countries (8). So that reading such guidelines may change care providers attitude and motivate them to implement in their facility.

Knowledgeable HCPs had favorable attitude in relation to PCC. It is consistent with other study of systematic review which done in Western world (17). Knowledgeable health care providers may be motivated and view different PCC service elements to make understand the importance and consequences of their service provision. Hence care providers accept the service as to be provided.

Limitation Of The Study

Though this study incorporates all HCPs, works in public, private, urban and rural health facilities, it didn't include: level of practice of PCC service in health institutions and any professionals those have no direct involvement in PCC service like radiologists, optometrists, laboratory technology professionals and dental health care service providers.

Conclusion

The larger number of HCPs in this study had poor knowledge and unfavorable attitude towards PCC services. Higher monthly salary, midwifery profession, ever read about PCC service guidelines and presence of library in the institutions may increases the knowledge of HCPs on PCC service. The attitude towards PCC service was favorable among HCPs with degree and above educational status, good level of knowledge about PCC service and among those who ever read guidelines.

Recommendation

Federal ministry of health set national PCC guideline, protocol and to have in-service training for health professional about PCC, zonal health department heads and health institutions managers to avail guideline, library and internet in their institution, to avail internet in their institutions to improve the health care providers level of knowledge and attitude about PCC, future researchers to study PCC level of practice and qualitative study on PCC.

Acronyms And Abbreviations

AIDS: Acquired Immunodeficiency Syndrome, APO: Adverse Pregnancy Outcome, FMOH: Federal Ministry of Health, GP: General Practitioner, HCP: Health Care Provider, HEW: Health Extension Worker, KAP: Knowledge, Attitude and Practice, MCH: Maternal and Child Health, MCFHN: Maternal, Child and Family Health Nurses, OPD: Outpatient Department, PCC: Preconception Care, RH: Reproductive Health, US: United States, WHO: World Health Organization, ZHD: Zonal Health Department

Declarations

Ethical approval and consent for participation

The proposal was first presented and submitted to Debre Markos University public health department, then to Ethical Review Committee of the College for Ethical Approval and Clearance. Ethical clearance letter was taken from Debre Markos University ethical review committee office and submitted to North Wollo zone health department. Support letter to each selected health institutions. Informed consent from the respondents was found after explaining the purpose of the study to them. To protect confidentiality no name of respondents in the questionnaire was recorded, respondents have the right not to participate in the study.

Consent for publication

Not applicable

Availability of data

The dataset is avail from correspondence and the first Author. We are ready to communicate if any suggestions.

Funding

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Conflict of interest

The Authors declared that there are no conflicts of interest about this work.

Authors' contribution

Teketay Debalkie originated the proposal, participated in the data collection; analyze data, drafted and final thesis writing. Mulunesh Alemayehu, Nakachew Mekonen approved the proposal with minor revision, analysis the data and revise the paper. Tesfaye Birhane thesis edition and prepare manuscript.

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