

Research Article

Husband Support Rises Women's Awareness of Preconception Care in Northern Ethiopia

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Background. Preconception care (PCC) aims to improve pregnancy and health outcomes of mothers and their offspring. However, there is no adequate evidence of awareness on preconception care in Ethiopia. Therefore, the present study was performed to assess the level of awareness and associated factors of preconception care among currently delivered mothers. **Method.** A community-based cross-sectional study was conducted among 561 mothers in Northern Ethiopia. Data were collected using a pretested, structured questionnaire. Odds ratio presented with 95% confidence interval, and a p value <0.25 at bivariable and p value <0.01 at multivariable logistic regression were used to declare statistical significance. **Results.** 39.0% of mothers were aware of preconception care. Awareness of preconception care was lower among mothers who did not have joint plan discussion with their partner (AOR = 0.15; 95% CI (0.08, 0.28)); did not have a history of adverse pregnancy outcome (AOR = 0.45; 95% CI (0.25, 0.83)), and did not receive husband support (AOR = 0.10; 95% CI (0.05, 0.19)). **Conclusion.** Women's awareness of preconception care remains low. Joint plan discussion with the partner, previous history of adverse pregnancy outcome, and husband support were statistically significant predictors of awareness of preconception care. Thus, informing and sensitizing women and advocating husband support on preconception care are needed.

1. Introduction

Today, preconception care (PCC) is internationally recognized, and obstetric care should increasingly focus on prevention of adverse pregnancy outcomes [1]. The preconception period provides an opportunity to alter unhealthy behaviors in time, which could have a lasting positive effect on the (future) health outcomes of both the mother and child [2].

Globally, PCC is widely recognized as a way to optimize women's health and improve pregnancy outcomes [3]. Although there is a growing body of evidence supporting that pre-pregnancy is a critical period for both maternal and fetal health, preconception care is inconsistent and has not become part of routine practice in all settings. The practice of

preconception care is almost nonexistent in developing countries including Ethiopia [4].

Furthermore, preconception care is a neglected but a critical component of maternal and a child health care service as it is a cost-effective first-line preventive strategy for birth defects and other pregnancy-related complications. The early years of a child's life are critical in shaping future health and wider outcomes. National policy now supports a shift in focus to prevention and early intervention in the earliest years, from prebirth onwards. The early year's framework sets out the need for change from crisis management to prevention, early identification of need, and early intervention through progressive universalism. It highlights the value of healthy pregnancies, positive parenting, and home-learning environments [3, 5–7].

Thus, in settings like Ethiopia, where there are imprecise data on awareness of preconception care, promotion of preconception care among the reproductive age group women is important to boost maternal health-care services and to reduce pregnancy-related impediments. Therefore, this study sought to determine the level of women's awareness and associated factors of preconception-care service in Northern Ethiopia. So, the findings will contribute to the design of effective preventive strategies to grab the rising burden of adverse pregnancy and birth outcomes and flourish programs for better reproductive health services.

2. Materials and Methods

2.1. Study Design, Setting, and Participants. A community-based cross-sectional study was conducted in Mekelle City, which is the capital city of Tigray Regional state, Northern Ethiopia, from March 15 to April 30, 2018.

The source of population was all delivered mothers preceding the study in Mekelle City and all recently delivered mothers in selected ketenas of Mekelle city were the study population.

2.2. Sampling Technique and Procedure. The sample size was calculated using a single population formula assuming proportion (P) of preconception care experience of 38.2% conducted at West Shewa, Oromia, Ethiopia [8], a confidence level (CI) of 95%, marginal error (d) 5% and 5% nonresponse, and considering a design effect of 1.5. Considering all the aforementioned assumptions, the above-mentioned 564 mothers were included. A multistage cluster sampling technique was employed; in the first stage, three from seven subcities and in the second stage, five tabia (the unit of administration consists of 3 and above or 10–15,000 population) from fourteen tabias (the unit of administration consists of 3 and above or 10–15,000 population) of the selected subcities were randomly selected, and then each two of their respective ketenas (the smallest unit of administration consists of a minimum of 4,000 population, but sometimes depends on the geographical location.) according to the currently used administration were selected again by a simple random sampling technique (SRS).

2.3. Data Collection Instrument and Quality Management. The data were collected using a face-to-face interview. Prior to data collection, reliability test of the instrument was performed, and it had strong internal consistency ($\alpha = 0.76$) among a subsample of participants ($n = 30$). Daily supervision, spot checking, and reviewing the completeness of the questionnaire were conducted to keep the quality of data.

2.4. Statistical Analyses. Data were coded and entered into Epi-Info version 7 software. Descriptive analysis was performed. Age was reported as mean \pm Standard Deviation (SD), after the Kolmogorov–Smirnov goodness-of-fit test was applied for determining whether the data derived from a normally distributed population. Binary logistic regression

and multivariable logistic regression models were used to obtain crude and adjusted odds ratios for the outcome variable, using the SPSS 20™-statistical package. The statistical significance was set at $p < 0.01$.

2.5. Ethical Consideration. Ethical clearance was obtained from Mekelle University, college of health sciences; Ethical Review Board. An official letter of cooperation was granted by the Tigray Regional Health Bureau, and written informed consent was warranted from all participants.

3. Results

3.1. Sociodemographic Characteristics. Out of the total five hundred and sixty-four mothers who delivered within the last one year, 561 were included in the study. Of the 561 participants, 277 (49.4%) were within the age group between 25 and 34 years and ranged from a minimum of 18 years to a maximum of 43 years. The mean age of the respondents was 31.22 years (SD = 6.04).

Four out of ten mothers were housewives, and three-fourth of the participants were married. Regarding participants' education, 191 (34%) were from secondary school (Table 1).

3.2. Reproductive Health Characteristics. About two-third of the participants had experienced two to four pregnancies. Concerning parity, three-fourth ($n = 423$) of the participants were multipara. Three hundred and forty-one out of 561 respondents had a history of family planning use. On the subject of previous adverse pregnancy or birth outcome, two out of ten, 118 (21%), of them had a history of adverse pregnancy/birth outcome. Thirty-nine (7.0%) of the respondents had a chronic health problem. Regarding husband support on the preconception care, only 159 (28.3%) of the participants had received husband support during the preconception period and 167 (29.8%) of the subjects have had a joint plan discussion with their partner about preconception care (Table 2).

3.3. Awareness of Preconception Care. Two hundred and nineteen (39.0%) of the participants were aware of preconception care (Figure 1). According to the source of information, majority of the mothers have heard about PCC from physicians, 103 (47.0%), and twenty-seven (12.3%) of them have heard from health extension workers. Six out of ten mothers were aware of the difference between antenatal care and preconception care services. Moreover, about two-thirds, 153 (69.7%), of mothers were aware of the time a women should start the uptake of preconception care (Table 3).

Furthermore, from the WHO preconception care package components, about three-fourth, 168 (76.7%), of the mothers were aware of screening and treatment of infectious disease, whereas one out of ten, 30 (13.7%), were aware of optimizing psychological health (Figure 2).

TABLE 1: Sociodemographic characteristics of mothers in North Ethiopia, 2018 (N= 561).

Variable	Frequency	Percent (%)
Age		
15-24	88	15.7
25-34	277	49.4
35-49	196	34.9
Mother's education		
Illiterate	74	13.2
Read and write	73	13.0
Elementary school	127	22.6
Secondary school	191	34.0
College/university	96	17.1
Marital status		
Married	438	78.1
Single/never married	62	11.1
Divorced	53	9.4
Widowed	8	1.4
Occupation		
House wife	232	41.4
Daily worker	94	16.8
Government employee	104	18.5
Private business	129	23.0
Other (student)	2	0.4
Household income in ETB		
Less than 500	132	23.5
501-1000	207	36.9
1001-2000	151	26.9
2001 and above	71	12.7

3.4. *Factors Associated with Awareness of Preconception Care Service.* In bivariable analysis, maternal age, educational status, occupation, household income, history of family planning use, experience of adverse pregnancy or birth outcome, joint plan discussion with their partner, and husband support were associated with awareness of preconception care. Finally, multivariable analysis showed that experience of adverse pregnancy or birth outcome, joint plan discussion with their partner, and husband support were independently affecting maternal awareness of preconception care service.

Mothers who had not experienced adverse birth outcomes were 55% times (AOR = 0.45; 95% CI (0.25, 0.83)) less likely to be aware of preconception care service than mothers who had had a history of adverse pregnancy or birth outcome.

There were lower odds (AOR = 0.15; 95% CI (0.08, 0.28)) of preconception care service awareness among mothers who have not had joint plan discussion with their partner as compared with mothers who had had joint plan discussion with their partner.

Furthermore, this study revealed that experience of husband support has a significant association on awareness of preconception care, which means mothers who had not received husband support were 90% times (AOR = 0.10; 95% CI (0.05, 0.19)) less likely to be aware of preconception care service as compared with mothers who had received support from their husbands (Table 4).

TABLE 2: Reproductive health characteristics of mothers in North Ethiopia, 2018 (N= 561).

Variable	Frequency	Percent
Gravidity		
1 pregnancy	113	20.1
2-4 pregnancies	379	67.6
≥5 pregnancies	69	12.3
Parity		
Primipara (1 pregnancy)	138	24.6
Multipara (2 and above pregnancies)	423	75.4
Previous use of family planning		
Yes	341	60.8
No	220	39.2
Previous adverse pregnancy/birth outcome		
Yes	118	21.0
No	443	79.0
Type of adverse pregnancy outcome (n = 118)		
Congenital anomalies	23	19.5
Low birth weight	17	14.4
Preterm	10	8.5
Abortion	67	56.8
Still birth	22	18.6
Neonatal death	7	5.9
Infection	13	11.0
Husband support		
Yes	159	28.3
No	402	71.7
Joint plan discussion with partner		
Yes	167	29.8
No	394	70.2
Any chronic health problem		
Yes	39	7.0
No	522	93.0
Type of chronic health problem (n = 39)		
HIV/AIDS	14	35.9
Hypertension	14	35.9
Diabetics mellitus	5	12.8
Others*	8	20.5

*Epilepsy, tuberculosis, and anemia.

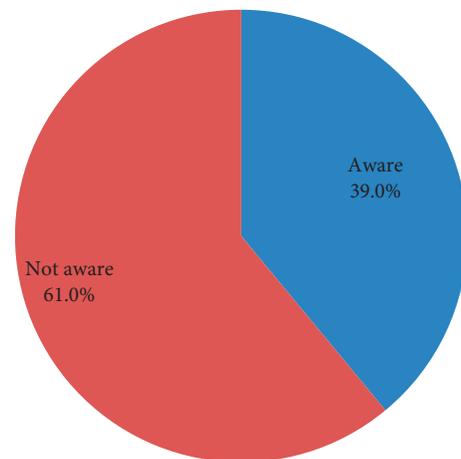


FIGURE 1: Awareness of mothers on preconception care in Mekelle, North Ethiopia, 2018.

TABLE 3: Awareness on preconception care among mothers in North Ethiopia, 2018 (N= 561).

Variables	Frequency	Percent
Source of information (n = 219)		
Physician	103	47.0
Nurse/midwife	81	37.0
Health extension worker	27	12.3
Peer/family	30	13.7
Mass media	62	28.3
Awareness regarding the difference between ANC and PCC (n = 219)		
Yes	137	62.6
No	82	37.4
Awareness of the time a women should start the uptake of preconception care (n = 219)		
At least one month before conception	153	69.7
During pregnancy	21	9.6
During labor	15	6.8
Do not know	30	13.7

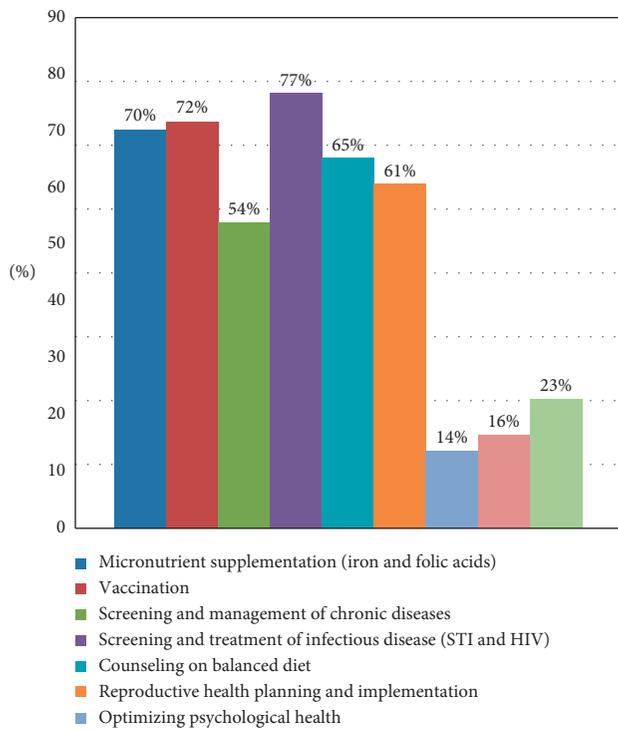


FIGURE 2: Level of awareness of mothers on the World Health Organization components of preconception care, 2018.

4. Discussion

Disseminating information concerning the services given during conception care will improve the maternal and child health in general, leading to positive reproductive outcome. PCC describes education that targets the preconception and early pregnancy periods and addresses optimizing current health status and relevant lifestyle behaviors. Therefore, this community-based cross-sectional study revealed that previous adverse pregnancy or birth outcome, having joint plan discussion with the partner, and husband support were the identified factors influencing awareness of preconception care among mothers who gave birth during the last one year in Mekelle town, North Ethiopia.

This study revealed that there was low awareness level of respondents regarding preconception care. This is lower than the findings conducted in Jordan 50% [9] and Nigeria which revealed that 63.5% women had been aware of preconception care [10]. The possible reason for this discrepancy might be due to access of information, communication, and socioeconomic status difference which showed that there is a need to health education and promotion strategy to raise the low level of awareness in our setting. The main source of information of preconception care in this study were the health-care providers, mainly physicians, 47.0%, and this was in line with a survey carried out in Ontario where 78.4% claimed to deliver preconception care awareness by family physicians [11]. Fulfilling the right to health requires health systems to become fully responsive to women and girls, offering higher quality and more comprehensive and readily accessible services. Societies at large must end practices that critically endanger women’s health and well-being among them and all forms of gender-based violence. Sustainable Development Goal (SDG) number three puts a target to reduce the global maternal mortality ratio to less than 70 per 100,000 live births and newborn mortality at least as low as 12 per 1000 live births by the year 2030 [12]. Preconception care has a positive impact on reduction in mortality and decreases the risk of adverse health effects for the woman, fetus and neonates by optimizing the woman’s health and knowledge before planning and conceiving a pregnancy [13].

The study also revealed that husband support is a significant predictor of preconception care awareness. This is in line with a study done in Bayelsa state, Nigeria, which showed that mothers who had received husband support are more likely to be aware of preconception care. In other words, mothers who had not received husband support were less likely to be aware of preconception care as compared with subjects who received support from their husbands [14]. However, most women kept their pregnancy intent private between their partner and themselves and rarely sought support from family and friends during the preconception period in developing countries [15].

TABLE 4: Factors of women's awareness on preconception care.

Variable	Awareness on preconception care		Odds ratio and 95% CI	
	Aware (%)	Not aware (%)	Crude	Adjusted
Age (in years)				
15–24	45 (100.0%)	43 (48.9%)	3.14 (1.84–5.33)*	
25–34	125 (45.1%)	152 (54.9%)	2.47 (1.65–3.68)*	
35–49	49 (25.0%)	147 (75.0%)	1	NS
Mother's education				
No education	39 (26.5%)	108 (73.5%)	0.23 (0.13–0.39)	
Primary education	47 (37.0%)	80 (63.0%)	0.37 (0.21–0.64)	
Secondary education	74 (38.4%)	117 (61.3%)	0.40 (0.24–0.66)	
More than secondary	59 (61.5%)	37 (38.5%)	1	NS
Household income in ETB				
<500	62 (47.0%)	70 (53.0%)	0.49 (0.46–1.45)	
501–1000	62 (30.0%)	145 (70.0%)	0.39 (0.23–0.68)*	
1001–2000	58 (38.4%)	93 (61.6%)	0.57 (0.32–1.01)	
≥2001	37 (52.1%)	34 (47.95%)	1	NS
Parity				
Primipara (1 pregnancy)	52 (37.7%)	86 (62.3)	0.93 (0.62–1.38)	
Multipara (2 and above)	167 (39.5%)	256 (60.5%)	1	NS
Gravidity				
One pregnancy	43 (38.1%)	70 (61.9%)	1.51 (0.79–2.87)	
2–4 pregnancies	156 (41.2%)	223 (58.5%)	1.71 (0.98–2.99)	
5 and above pregnancies	20 (29%)	49 (71%)	1	NS
Previous family planning use				
No	65 (29.5%)	155 (70.5%)	0.51 (0.36–0.73)*	
Yes	154 (45.2%)	187 (54.8%)	1	NS
Previous adverse pregnancy outcome				
No	284 (64.1%)	159 (35.9%)	0.54 (0.36–0.82)*	0.45 (0.25–0.83)**
Yes	58 (49.2%)	60 (50.8%)	1	1
Having joint plan discussion with partner				
No	79 (20.1%)	315 (79.9%)	0.05 (0.03–0.08)*	0.15 (0.08–0.28)**
Yes	140 (83.8%)	27 (16.2%)	1	1
Husband support				
No	82 (20.4%)	320 (79.6%)	0.04 (0.03–0.07)*	0.10 (0.05–0.19)**
Yes	137 (86.2%)	22 (13.8%)	1	1
Having any chronic diseases				
No	191 (36.6%)	331 (63.4%)	0.23 (0.11–0.47)	
Yes	28 (71.8%)	11 (28.2%)	1	NS

p* value; **p* value < 0.05; *p* value < 0.001, NS: nonsignificant.

Another finding was that adverse pregnancy or birth outcome of the mother also has a significant positive association with the awareness of preconception care. This study corroborates the finding of a study conducted in Los Angeles, which indicated that a previous adverse infant outcome was associated with an increased odds of awareness and uptake of preconception care in the most recent pregnancy. This might be due to the fact that those mothers who had an experience of adverse pregnancy outcome or complication in their life were more concerned about the health status of their next pregnancy and getting a chance to consult health-care providers than those who have not had complications [16]. If a woman has appropriate awareness of preconception health and care, she can seek or easily attend the preconception care service. This can help her easily identify and effectively control the underlying risk condition that leads to abnormal birth outcome. Health-care providers participated in one research which reported poor awareness or knowledge of preconception health and care as a barrier

to the uptake and delivery of preconception care [17]. Also, another study indicates that preterm birth during delivery was significantly lower among women who received preconception care compared with those who did not [18]. Hence, intervention should preferentially be conducted during the preconception period, and efforts should be made to recognize potentially treatable causes early to reduce the risk of adverse birth outcomes.

Finally, this study noted that mothers who have not had joint plan discussion with their partners were 90% times less likely to be aware of the preconception care when compared with their counter parts. This study agrees with the guideline of Centers for Disease Control and Prevention and the U.S. Department of Health and Human Services indicating that a woman's reproductive plan should be discussed with her own partner [19] and study conducted in Ethiopia [20] and Brazil [21]. This is because all women/couples have a reproductive life plan (e.g., whether or when they wish to have children and how they

will maintain their reproductive health) and are influenced by interests of one to each other to reduce the occurrences of unplanned pregnancy and pregnancy-related complications. In addition, reproductive age women who planned their pregnancy are expected to know their healthiness correlated to maternal health care and may thus also have a better awareness of issues correlated to preconception care.

5. Conclusion

Findings of this research indicated that women's level of awareness on preconception care remains low. Joint plan discussion with the partner, previous experience of adverse pregnancy or birth outcome, and husband support were statistically significant factors of awareness of preconception care. Thus, this finding suggests that there is a need to informing and sensitizing women of reproductive age and advocating husband's support on preconception care to raise the level of awareness. There is a need for policymakers in health ministries in Ethiopia as well as relevant stakeholders to advocate for incorporation of preventive medical clinics comprising risk assessment, risk prevention, or modification for couples in general in the existing health-care delivery system.

Data Availability

The datasets used and/or analyzed during the current study are available from the corresponding author upon request.

Ethical Approval

The study was approved by Mekelle University Institutional Review Board (ERC1305/2018).

Consent

Written informed consent was obtained from each study participant.

Disclosure

The funder had no role in study design, data collection, analysis and interpretation, decision to publish, or preparation of the manuscript.

Conflicts of Interest

The authors declare that they have no conflicts of interest.

Authors' Contributions

MWA was responsible for the methodology, review, and editing the manuscript. HGW was involved in formal analysis, writing the review, and editing. TTA was involved in conceptualization and writing the original draft. All authors have read and approved the manuscript.

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