

ORIGINAL ARTICLE**UTILIZATION OF CLEAN AND SAFE DELIVERY SERVICE PACKAGE OF HEALTH SERVICES EXTENSION PROGRAM AND ASSOCIATED FACTORS IN RURAL KEBELES OF KAFA ZONE, SOUTHWEST ETHIOPIA**

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ABSTRACT

BACKGROUND: In Ethiopia, 94% of births take place at home unattended by trained persons. The government introduced an innovative strategy, Health Services Extension Program in 2003. Clean and safe delivery service is a component of maternal and child healthcare package of the program. However, little is known about the status of uptake of the service. This study thus aimed to assess utilization of clean and safe delivery service and associated factors in rural kebeles of Kafa Zone, Ethiopia.

METHODS: A community based cross sectional survey was conducted in rural kebeles of Kefa Zone from January 21st to February 25th, 2009 using a sample of 229 mothers. Kafa Zone is located 465 kilometres away from Addis Ababa to southwest of Ethiopia. Data were collected using a structured questionnaire and analyzed using SPSS for windows version 16. OR and 95% CI were calculated. $P < 0.05$ was considered statistically significant.

RESULTS: Utilization of clean and safe delivery service was 43(19%). Women with formal schooling and those who knew at least two danger signs of pregnancy and labor were more likely to use the service than their counterparts; (AOR=5.8, 95% CI=2.1, 16) and (AOR=3.0, 95% CI=2.2, 10.6), respectively. Of 108(47.8%) mothers who had at least one antenatal care visit, 36(33.3%), were not advised about danger signs. Women who had at least one ANC visit and those who were advised about the danger signs of pregnancy and labor appeared to be more likely to use the service than their counterparts; (AOR=6.1, 95% CI=1.9, 21.3), and (AOR=5.4, 95%CI= 1.4, 21.7), respectively.

CONCLUSION: Utilization of the service is low and was determined by women's educational status, history of abortion, knowledge of danger signs and antenatal care attendance. Educating women and improving their knowledge about danger signs of pregnancy and labor is recommended. Health extension workers should consider antenatal care visits as opportunities for this purpose.

KEY WORDS: Clean and Safe Delivery Service, Health Services Extension Program, Kafa, Ethiopia

INTRODUCTION

Maternal death is a very common event, for women living in the poorer parts of the world; the risk of dying as a result of pregnancy in high-income countries is at least 100 times lower than that in low-income countries of Africa and Asia (1). According to the World Health Organization (WHO), one in 20 African women die largely of preventable deaths, pregnancy and childbirth, compared to one in 4000 in Europe (2). Maternal mortality ratio in Ethiopia is estimated to be 673

per 100,000 live births, which is among the highest in the world (3). Most of these deaths can be prevented through the provision of basic essential maternal health care and availability of trained personnel to attend women during labor and delivery whether the birth takes place at home or in health facility (1). In 1994, Maine D. reported that raising awareness of pregnant women on the danger signs would improve early detection of problems and reduces the delay in deciding to seek obstetric care (4).

Studies have identified various factors which influence professionally assisted delivery service utilization. Literate women were found more likely to be attended by trained professionals during child birth in Pakistan (5). Mothers' education and age at child birth were important independent factors in determining the choice of delivery place in rural Tanzania (6). In Nepal, women who had had bad experiences in previous pregnancies appeared to be more likely to visit a health facility, in some cases regardless of whether or not they were currently experiencing problems (7). Moreover, antenatal care (ANC) use has been shown to influence women's use of delivery services (8). Community perception of Community Health Workers' (CHWs') knowledge, skills and overall ability to help women with health needs is also important for inspiring their respect and acceptance of CHW services (9). In addition, women's preference of having birth at home is a deep-rooted cultural belief (10). For instance, in Pakistan (5) and Bangladesh (10) unfavorable cultural beliefs and perceptions were identified to be among the leading causes of poor utilization of primary health care services.

In Ethiopia, professionally assisted delivery service is generally reported to be low (3, 11, 12). Ninety-four percent of births take place at home without the assistance of trained persons. Of these, 28% are assisted by Traditional Birth Attendants (TBAs), 61% by relatives or others and 5% are delivered without any type of assistance at all (11). In the country, women with no education were less likely to be attended by a health professional during delivery than women with some secondary or higher education (3, 11, 12). ANC service use was also reported to be a factor in Northwest Ethiopia (13). Knowledge of mothers was another factor for the low utilization as many pregnant mothers didn't know most of the danger signs of pregnancy. The effect of cultural practices in hindering health care seeking was also significant (14).

In response, the Health Sector Development Program (HSDP)-IV of Ethiopia targets 38% utilization rate of clean and safe delivery service by 2015 as part of its commitment towards MDG-5 (12). To materialize this, an innovative community based

health services delivery strategy called Health Services Extension Program (HSEP) has been introduced since 2003 (15). The program is being implemented by deploying two employed female Health Extension Workers (HEWs) who received one year training. Each Kebele will have a health post (HP) which is the operational center for the HEWs (16). ANC and clean and safe delivery services are among the elements of Maternal and Child Health (MCH) services package of HSEP (15). The Implementation of these elements focuses on empowering women, their families and communities to recognize pregnancy related risks, and to take responsibility for developing and implementing appropriate response to them. The HEWs are expected to: provide ANC services, advice mothers on birth preparedness and pregnancy/labor related warning signs/symptoms; promote institutional delivery, manage normal deliveries and identify and refer high risk pregnancies (16).

It is assumed that proximity of HPs to communities creates a better opportunity for women to utilize clean and safe delivery service (17). In addition, the HEWs' constant companionship and skilful management of births contributes much to the harmonious atmosphere and feeling of trust during labor and delivery which leads to a fruitful outcome. HEWs play a gate-opening role at community level in creating supportive environment for the utilization of clean and safe delivery services. Unlike health workers at hospitals and health centers (HCs), HEWs at HPs are nearby and known by women; they belong to the same communities and share similar backgrounds (18).

Despite the substantial investments and endeavors in implementing the innovative program, the uptake of clean and safe delivery service package remained low unlike other maternal health services (19). A study on maternal healthcare use revealed that utilization of ANC and Deliveries Attended by Health Professionals (DAHP) including HEWs, were 54% and 16%, respectively (20). Another study on the role of HEWs in improving maternal health services found out that the majority, (81%), of women delivered their babies with the help of relatives or friends and only 7% were assisted by HEWs (21). HEWs' low

performance in assisting birth also relates to how they are perceived by the community, i.e. their acceptance by the community has been low (21-23). Low skill level of HEWs in assisting deliveries was also reported as the main factor for the low rate of attended births (24). However, little is known about the uptake of clean and safe delivery service package in the study area despite the fact that HSEP has been implemented in all rural Kebeles targeting all pregnant mothers (25). Therefore, this study aimed to determine the utilization of clean and safe delivery service and identify the factors influencing the utilization in rural Kebeles of Kafa Zone, Southwest Ethiopia, for possible programmatic actions.

METHODS AND MATERIALS

Kafa Zone is situated about 465 kilometres away from Addis Ababa to the southwest of Ethiopia. It has an area of 13.199 sq. kms which is about 1.1% of the Ethiopia's land mass. It is located at 035.3°-036.48° east and 6.48°-8.50° north (25). It had an estimated population of about 880,093 in 2009. Only 10 % of the population resided in urban areas (3). The zone is administratively divided in to 10 woredas, one town administration and, 301 kebeles (282 rural and 19 urban). Potential health service coverage of the zone was 50% with one district hospital, 31 HCs and 87 HPs in the public sector. There was only one physician in the district hospital. One nurse was for about 4400 population (25). The study was conducted from January 21st to February 25th, 2009.

To investigate the issue in focus, a community based cross-sectional survey was employed. Multi stage sampling technique was used to select the study participants. Bitta, Gesha and Adiyu woredas were selected randomly from the total of 10 Woredas in the administrative zone. Three rural kebeles were selected from each selected woreda in the same way, making a total of nine. Women who resided in the kebeles and gave birth from January 01 to December 31, 2008 were the study subjects. The number of women included in the study was determined using single population proportion formula with the following assumptions: confidence interval of 95%,

significance level of 0.05, estimated proportion of clean and safe delivery service utilization rate of 7.3% (26), margin of error of 5%, design effect of two and non response rate of 10%. The final sample of 229 was allocated to the nine rural kebeles proportionally to the expected number of births during the reference period. All births which took place from January 01 to December 31, 2008 were listed out and the study subjects were selected randomly from the list.

A structured questionnaire was developed based on the relevant literature (3, 4, 11, 13, 14, 27). Six experienced health officers were recruited from woredas which were not included in the study. Three of them were supervisors based on their competence and experience. Twelve clinical nurses, who could fluently speak the local language, "Kafinonoo", were selected and trained for two days on the procedure of data collection. Data quality was assured by intensive training of data collectors and close supervision by experienced supervisors. Incorrectly or incompletely filled out copies of the questionnaire encountered during supervision were returned for correction to the respective data collector. The questionnaire was pre-tested to assess its understandability and applicability. Data were analyzed using both descriptive and analytical statistical techniques with the help of SPSS for windows version 16. The dependent variable was dichotomized into those whose recent deliveries were assisted by HEWs and those whose were not, for statistical analyses. Logistic regression model was applied for multivariate analysis to verify basic determinants of the service utilization. Odds ratios and their 95% Confidence Intervals (CIs) were calculated. Significance level of 0.05 was considered to determine the presence of association between groups of variables. Utilization of clean and safe delivery service was measured as the number of women whose last birth was assisted by a trained health professional (including the HEW). The same definition has been used elsewhere (20). Age, educational status, parity, history of abortion, knowledge of at least two danger signs of pregnancy and labor; harmful traditional practices to hasten labor; distance from health post and health center; at least one ANC visit and receipt of information about danger signs

during ANC visit were selected as independent variables. While women with elementary schooling and above were grouped under “formal schooling”, those who were unable to read and write and those who were able to read and write only were grouped under “no formal schooling”. Among the practices that women had used to facilitate child birth during prolonged labor, abdominal massage and abdominal piercing were considered as harmful traditional practices for further analysis. Perception of women about the service and its providers was assessed to find out if their last child birth was attended by HEWs. Their perception about the knowledge and skill of HEWs and understandability of the explanations given by HEWs during attendance were measured using a four level scale: “Very well”, “Well”, “Poor” and “Don’t want to reply.”

The proposal was submitted to the Ethical Review Committee of Jimma University and ethical clearance was obtained after approval of the proposed study. Then, letters of support were secured from concerned officials at different levels and verbal consent was obtained from participants. Measures were taken to ensure the respect, dignity, and freedom of each individual participant in the study. Information was also kept confidential.

Ethiopia is administratively divided into regions/city administrations, zones, woredas and kebeles. While regions/city administrations are the biggest divisions, kebeles are the smallest ones. In this document, ‘zone’, ‘woreda’ and ‘kebele’ can be equated to province, district and village, respectively. Clean and safe delivery service is defined in this study as delivery conducted either in a health institution or a home assisted by a trained health professional (including the HEW). This definition has been used by other studies too (20, 28). Definitions of key danger signs were adopted from the work of Maine D. (4). Key danger signs during pregnancy are: severe vaginal bleeding, swollen hands/face and blurred vision. Severe vaginal bleeding, prolonged labor, convulsions and retained placenta are the key danger signs during labor and child birth.

RESULTS

Two hundred twenty six women who gave birth in 2008 were included in the study, yielding a response rate of 98.7%. Ninety-eight, (43.3%), respondents were from Adiyo Woreda whereas 74(32.2%), and, 54(23.9%), were from Gesha and Bitta Woredas, respectively. The majority, (76.5%), of the women were 20-34 years old with the mean (SD) age of 26.7(±6.2) years. Mean (SD) age at first marriage was 17(±2.7) years. Almost all, (96.9%), of them were married. Two-thirds were followers of Orthodox Christianity followed by Protestant Christianity believers (23%). About a quarter, (26.5%), of the respondents had attended formal schooling. Eighty seven, (38.5%), women were primiparas (first deliveries) and, 78(34.5%) were grand multiparas (five or more deliveries). Twenty one, (9.3%), respondents had history of abortion. While, 163(72%) and 123(54.5%) women respectively didn’t know any of the key danger signs of pregnancy and labor; 61(27%) were able to mention spontaneously at least two key danger signs of both pregnancy and labor.

One hundred and eighteen, (52.2%), respondents didn’t attend ANC service during the last pregnancy, and 108 (47.8%) of the participants had at least one ANC visit. Twenty two, (9.7%), women visited at least four times. All of the study from Gesha Woreda didn’t receive ANC service at all. Of those who had at least one ANC visit, (n=108); 36(33.3%), were not advised about danger signs of pregnancy or labor by the service provider (Table 1).

Practices that respondents used to facilitate child birth during prolonged labor were assessed. Thirty four, (15%), women reported that they would identify the nearest HC and arrange for referral; 94(41.6%), used abdominal massage; 14(6.2%), utilized abdominal piercing; and 13(5.8%), ate butter with “*telba*” to hasten the birth process. The rest, 71(31.4%), took no action at all. Overall, 108(47.8%) mothers had ever practiced either abdominal massage or abdominal piercing. Among 43 women who were attended by trained health professionals including HEWs, 10(23.3%) reported having used the harmful traditional practices. On the contrary, 33(76.7%) of the attended mothers

didn't report utilization of any of the harmful traditional practices.

Table 1: Socio-demographic and obstetric characteristics of respondents; harmful traditional practices and; distance to health post & the nearest health center, Kafa Zone, Jan. 2009, (n=226).

Variables	No	%
Age in years		
≤ 19	22	13.8
20-34	173	76.5
≥ 35	31	9.7
Marital status		
Never married	1	0.4
Married	219	96.9
Divorced	3	1.3
Widowed	3	1.3
Religion		
Orthodox	170	75.2
Protestant	52	23.0
Catholic	2	0.9
Muslim	2	0.9
Educational status		
No formal schooling	166	73.5
Formal schooling	60	26.5
Parity		
1	87	38.5
2-4	61	27
≥5	78	34.5
History of abortion		
Yes	21	9.3
No	215	90.7
Used harmful traditional practices to facilitate labor		
Yes	108	47.8
No	118	52.2
Walking distance to health post		
≤ One hour	155	68.6
> One hour	71	31.4
Walking distance to the nearest health center		
≤ One hour	39	17.3
> One hour	187	82.7
Knows at least two danger signs of pregnancy and labor		
Yes	61	27
No	165	73
Had at least one ANC visit		
Yes	108	47.8
No	118	52.2
Advised on danger signs of pregnancy & labor during ANC (n=108)		
Yes	72	66.7
No	36	33.3

With regard to distance to the HP and HC, 155(68.6%) of the respondents estimated that it would take an hour or less to walk to the HP and the remaining estimated it to take more than an hour. One hundred eighty-seven, (82.7%), women could walk more than an hour and the rest reported having walked an hour or less to reach to the nearest HC. Among those who were attended by health professionals, (n=43); 31(72.1%) could walk an hour or less to reach the HP and the rest could walk more than an hour. Similarly, 9(20.9%) of the attended mothers could walk an hour or less and the rest, 34(79.1%), could walk more than an hour to get to the nearest health center. However, these differences are statistically insignificant in both cases with p-values of 0.26 and 0.39 for access to HP and HC, respectively (Table 1).

The highest number of births, (94%), took place at home. Fifteen, (6.6%), women gave birth in formal health institutions of which only five were HPs. Totally, 43(19%) births were attended by trained health professionals including HEWs. While 33(14.6%) deliveries were attended by HEWs, 10(4.4%) were attended by other health professionals such as nurses and health officers. TBAs and Trained Traditional Birth Attendants (TTBAs) assisted only three (1.3%) deliveries, and 180(79.7%) births were assisted by untrained relatives such as husband, mother, sister and neighbors. Sudden nature of labor, i.e., short and smooth labor was the leading reason, 92(47.7%), reported by those who were not attended by HEWs followed by lack of awareness, 41(21.2%), and lack of confidence in the HEWs' ability, 20(10.4%) (Table2).

Table 2: Reported reasons for home deliveries that were not attended by HEWs, Kafa Zone, Jan.2009 (n =193)

Reported reasons	No	(%)
Sudden nature of labor (short and smooth labor)	92	47.7
Lack of awareness	41	21.2
Not confident in the ability of HEWs	20	10.4
Distance	16	8.3
HEWs not available	15	7.8
Fear of being badly treated by HEWs	5	2.6
Lack of awareness and understanding on the side of men	2	1.0
Lack of money	2	1.0

Mothers were asked about who would decide where to go for help when they experience pregnancy or labor related health problems. One hundred fifty one, (66.8%), women reported husbands as primary decision makers followed by parents or siblings, 13(5.8%); HEWs, 37(16.4%); community based organization, i.e., "Idir"; 16(7.1%), and TBAs, 4(1.8%). Only five, (2.2%), respondents could decide by themselves.

Out of the 33 women who were attended by HEWs, 16(48.5%) and 11(33.3%) reported that the HEWs treated them very well and well, respectively, during attendance of the last delivery. Five, (15.2%), felt that the treatment was poor and, 1(3.0%), woman didn't want to respond. Similarly, 23(69.7%), and 4(12.1%),

respondents respectively perceived the attending HEW to be easy and difficult to understand when explaining things. The remaining, 6(18.2%) respondents didn't want to respond. Consequently, 24(72.7%) respondents preferred to be attended in the future by the same HEW; 2(6.1%), didn't show interest and, 7(21.2%) were not sure about future attendance by the same attendant.

After other variables were controlled, women with formal schooling were found highly likely to use clean and safe delivery service than their counterparts (AOR=5.8, 95% CI=2.1, 16.0). The majority, 32(74.4%), of those who used the service were 20-34 years old. Similarly, the majority, 22(51.2%), of the service users were primiparas followed by those with parity of

two to four, 12(27.9%), and multiparas, 9(20.9%). As parity increased, utilization of clean and safe delivery service showed a decreasing pattern. However, the differences both by age and parity were not statistically significant with p-values of 0.35 and 0.2, respectively. History of abortion was not

associated with use of the service. Harmful traditional practices, i.e., abdominal massage and abdominal piercing, were significantly associated with utilization of clean and safe delivery service (p-value=0.012).

Table 3: Association of selected socio-demographic and obstetric characteristics of respondents; harmful traditional practices; istance to health post & the nearest health center, Kafa Zone, Jan. 2009, (n=226)

Variables	Delivery attended by trained health professionals		COR(95% CI)	AOR(95% CI)
	Yes(n=43)	No(n=183)		
	No (%)	No (%)		
Maternal education				
Formal schooling	29(67.4)	31(16.9)	10.2(3.6,17.8)	5.8(2.1,16)
No formal schooling	14(32.6)	152(83.1)	1	1
Age in years				
≤ 19	6(14)	16(8.7)	1.95(0.4,2.2)	1.5(0.02,4)
20-34	32(74.4)	141(77)	1.18(0.25,13.7)	2.2(0.9,20)
≥ 35	5(11.6)	26(14.3)	1	1
Parity				
1	22(51.2)	65(35.5)	2.59(0.9,7.2)	3.1(0.7,6.2)
2-4	12(27.9)	49(26.8)	1.88(0.56,10.4)	2.8(0.09,8.9)
≥5	9(20.9)	69(37.7)	1	1
History of abortion				
Yes	20(46.5)	1(0.5)	158.2(0.9,215)	93.2(0.48,123)
No	23(53.5)	182(99.5)	1	1
Used harmful traditional practices				
Yes	10(23.3)	98(53.6)	0.38(0.06,0.9)	0.29(0.15,0.95) ***
No	33(76.7)	85(46.4)	1	1
Walking distance to HP*				
≤ One hour	31(72.1)	124(67.8)	0.52(0.06,5.1)	1.4(0.4,3.5)
> One hour	12(27.9)	59(32.2)	1	1
Walking distance to nearest HC**				
≤ One hour	9(20.9)	30(16.4)	1.35(0.25,8.4)	1.02(0.8,7.2)
> One hour	34(79.1)	153(83.6)	1	1
Knows at least two danger signs of pregnancy & labor				
Yes	26(60.5)	35(19.1)	6.5(1.7,14.8)	3.0(2.2,10.6)***
No	17(39.5)	148(80.9)	1	1
Had at least one ANC visit				
Yes	38(88.4)	70(38.3)	12.3(3.4,115)	6.1(1.9,21.3)***
No	5(11.6)	113(61.7)	1	1
Advised on danger signs of pregnancy & labor during ANC (n=108)				
Yes	37(86.0)	35(53.8)	5.3(2.8,23.1)	5.4(1.4,21.7)***
No	6(14.0)	30(46.2)	1	1

* Health Post, **Health Center, ***statistically significant at $p < 0.05$.

Those who reported having used one or both of these harmful traditional practices were significantly less likely to use the service than those who didn't (AOR=0.29, 95% CI=0.15, 0.95).

Women who knew at least two danger signs of pregnancy and labor were three times more likely to use the service than their counterparts, (AOR=3.0, 95% CI=2.2,10.6). Attending ANC service was shown to be associated with utilization of the service. Women who had at least one ANC visit were significantly more likely to use the service than those who didn't have any visit at all (AOR=6.1, 95% CI=1.9, 21.3). Advice given to women about danger signs during ANC follow-up was also significantly associated with their decision to use the service. Those who were advised about the danger signs of pregnancy and labor during their ANC visits were about five times more likely to use the service than those who were not (AOR=5.4, 95%CI= 1.4, 21.7) (Table 3).

DISCUSSION

Utilization of clean and safe delivery service was 19% which is higher than the national estimate for 2007, (7.3%) (26). Though unsatisfactory, this is relatively better than a study in which no delivery service by HEWs was reported in spite of the fact that a number of HPs had delivery kits and couches (22). It is also better than the national level performance of 14.7% three years after this study, 2011(26). However, it implies that the realization of the HSDP-IV target of 38% by 2015 (26) can be challenging. Sudden nature of labor, lack of awareness and lack of confidence in HEWs were frequently reported factors discouraging use of the service. This is in agreement with studies conducted in Northern and Southern Ethiopia for the former two reasons (11, 27). The HEWs' low performance in assisting birth relates to how they are perceived by the community. Their acceptance has been reported to be low (21-24). In the present study, it is serious in that 20(10.4%) of the mothers lacked confidence in the HEWs' ability. However, this needs further investigation to include the views of HEWs.

A number of socio demographic and obstetric factors were found to have significant

influence on the use of clean and safe delivery service in the zone. It has been reported that maternal education is consistently and strongly associated with all types of health behavior and use of delivery care is expected to be higher among more educated mothers (29). Women with formal schooling were more likely to use the service than their counterparts and this is consistent with similar previous studies on the work of HEWs in improving maternal health services utilization (20, 21, 30). There are various mechanisms through which mothers' education is thought to influence the utilization of maternal health services. Educated mothers may attach a higher value to their health, be more aware of the benefits of preventive health, have greater decision-making power, have greater confidence in dealing with service providers, and be more willing to travel outside their homes (31-32).

The majority of those who used clean and safe delivery service were 20-34 years old though the differences by age groups were insignificant. The same finding was reported in the study on the impacts of HSEP on maternal healthcare use in rural Ethiopia (20). Women experiencing first births and high order births are used as clinical markers for identifying individual women who need referral or extra care in pregnancy (29). In this study, there was no statistically significant difference among the parity groups in the service utilization. However, HEWs should advice women who have their first babies or who already have had five or more babies to be attended by trained health professionals during child birth (33).

History of abortion and using clean and safe delivery service were not associated in this study. This contradicts with similar studies conducted in Northern Ethiopia (27) and Nepal (7) which reported that women who had had bad experiences in previous pregnancies appeared to be more likely to prepare for birth and its complication than those who did not have. The spontaneous knowledge of respondents about key danger signs was very low compared to similar studies elsewhere (14, 27). About a quarter, (27%), was able to mention spontaneously at least two key danger signs of both pregnancy and labor. Women who knew at least two danger signs of pregnancy and labor

were three times more likely to use the service than their counterparts. This indicates good awareness level of women and a likelihood of upcoming good pregnancy. This could in turn imply the questionable quality of advice given by HEWs during ANC follow-up.

Nearly half, (47.8%), of the respondents didn't attend ANC service. This is better than findings from similar studies for rural areas. The Ethiopian Demographic and Health Survey (EDHS) 2005 (3) and the study in Northern Ethiopia in 2002 (16) reported that 75.4% and 29.2% of women didn't attend ANC service, respectively. The relationship between delivery care and ANC is of particular interest as they are two key components of maternity care (27). In the present study, attending ANC service was shown to be associated with utilization of clean and safe delivery service similar to another study conducted elsewhere (29). It could be due to the fact that ANC visits expose women to more health education and counseling both of which are likely to increase service utilization as it has been reported by other studies (3, 27). HEWs should provide explanations on any warning signs after ANC checkup. If a woman needs to be referred to a higher level health facility, they should make sure that she knows where and when to go (33). This study showed that almost one third of those who had at least one ANC visit were not advised about danger signs of pregnancy or labor. Advising women during ANC follow-up about the danger signs was also observed to have association with their decision to be attended by HEWs during delivery. Those who were advised were significantly more likely to use the service than those who were not, which is in agreement with a similar study (27).

Massaging a pregnant uterus is observed to cause uterine rupture, hemorrhage, still birth, foetal distress, rupture of placenta and finally, maternal death (34). In this study, almost half of the women reported to have practiced either abdominal massage or abdominal piercing to facilitate child birth during prolonged labor. Those who reported one of these harmful traditional practices were significantly less likely to use the service. This is comparable to studies conducted in Southern Ethiopia (14) and Zambia (35). This indicates the need to work hard in breaking the prevailing harmful traditional

practices related to utilization of the service package. This is one of the primary activities of HEWs in implementing the package as per the national HSEP guideline (16).

According to Watt G., community attitudes towards health workers influence care seeking and health related behavior. The end result may lead to decreased utilization of services by the community and the failure of preventive and promotional activities (36). Generally, treatment by the attending HEWs was perceived to be well by the majority of the women. Nearly two-thirds perceived the HEWs to be easy to understand when they explain things. These findings are better than the study undertaken in Kenya which reported the level of satisfaction of women with delivery services to be low (37). Obviously, the settings of the two studies are different which limits their comparison.

Generally, utilization of clean and safe delivery service package is still low in Kefa Zone. Though most women had positive perception towards the service provision, their knowledge level about danger signs of pregnancy and labor remained to be low. Massaging and piercing pregnant abdomen to hasten labor are harmful traditional practices which can complicate the service provision and the outcome. Women's knowledge of danger signs of pregnancy and labor, their educational status, history of abortion, ANC attendance and advice at ANC visit persisted to be predictors of clean and safe delivery service utilization. Therefore, the HSEP should focus on awareness raising and social mobilization to build women's confidence in HEWs for improved services utilization. Particularly, these efforts should focus on key signs of pregnancy and labor and harmful traditional practices hindering utilization of the service. The favorable perception of women about the service provision should be considered as an opportunity for strengthening client-provider relationship so that the perceptions would be changed into practice. HEWs should not miss opportunities which enable them to advise women on key danger signs during their ANC visits.

This study is limited for the following reasons. There might have been recall bias which is likely to occur because the subjects

were interviewed about events that had occurred a year ago. Since the study relied on women's self-reports of their perception about the way HEWs treated them during attendance of their last labor, it was unknown how accurately they were able to identify the quality of the treatment they received.

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