ORIGINAL ARTICLE

A cross sectional study on prevalence of gender based violence in three high schools, Addis Ababa, Ethiopia

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Abstract

Background: *Gender based violence (GBV) is a pervasive problem of most women all over the world. Studies in our country and Africa have shown great burden of this incapacitating problem in women. Cultural norms and beliefs play important role in perpetuating this problem.*

Objective: *This study was designed to determine the overall prevalence of GBV and its patterns in three selected high schools in Addis Ababa.*

Methods: *This is a cross sectional descriptive study conducted with 377 female high school students in the selected high schools. Self administered structured questionnaires were used.*

Results: *The study showed that 6.2% of the students have started sexual intercourse; and of these, 26.1% were raped cases. In addition 75.9% of the students reported being sexually harassed. Over 26% of the respondents have undergone female genital cutting (FGC). The incidence of household violence in the study population was 13.6%. Of the partnered female students 23% reported to have been physically abused by their partners.*

Conclusion: *Social support and law enforcement to mitigate this significant public health problem should be prioritized by the government and other organizations working on women's welfare.*

Keywords: Gender based violence, Rape, Female genital cutting

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Introduction

Adolescence is a time of transition in young people's life and it is associated with emotional disorders and high-risk health behaviors. Gender inequalities and differences in economic and social life in adolescents, influences their health and development. Power imbalance between the sexes heightens young women's vulnerability to negative reproductive health (RH) consequences (1,2).

The most extreme and common consequences of power imbalance is women's experience of sexual coercion and violence. In countries as different as Cambodia, India, Mexico, Nigeria, Pakistan, Papua New Guinea, Tanzania and Zimbabwe, studies show that violence is frequently viewed as physical chastisement and the husband's right to correct an erring wife (3).

Studies show that for many adolescent girls the first sexual experience is coercive and that physical abuse and violence are significant parts of young women's lives. In many cases, sexual coercion and violence starts in childhood and adolescence (5,6).

Gender based violence (GBV) includes physical, sexual, psychological and economic abuse. It also encompasses battering, forced or early marriage, female genital cutting (FGC), violence related to exploitation, rape, sexual harassment and intimidation at school or at work, forced pregnancy, forced abortion, forced sterilization, trafficking in women, forced prostitution, among others (6,7).

Such acts of violence could be devastating to woman's RH as well as other aspects of her physical and mental well being. In addition to causing injury, violence increases long term risk of a number of other health problems including chronic pain physical disability, drug and alcohol abuse and depression. Women with history of sexual and physical abuse are also at increased risk of unintended pregnancy, sexually transmitted infections (STI) and adverse pregnancy outcomes. The health consequence of GBV is a serious problem worldwide preventing women from participating in socio-economic development (8).

GBV occurs in all strata of the society. In situations of poverty and economic insecurity women are less likely to have the resources to leave violent relationships. This link is also seen in situations of armed conflict where women may have to accede to demands of sexual favors made by soldiers, border guards or camp administrators to secure their family's needs of food and safety.

Other forms of GBV prevalent in Ethiopia are marriage by abduction and early marriage. The other problem is FGC with 80% of women having undergone the procedure notably in Somali and Afar region (9).

In Addis Ababa rape of women including small girls, sexual harassment and intimidation have been reported and cause for serious concern. In female street adolescents, rape, attempted rape and other forms of GBV are more prevalent (10).

Studies on these important public health problems are not adequate. Therefore, this study is aimed at determining the magnitude of the problem in female high school students in Addis Ababa, Ethiopia.

Methods and materials

This is a cross sectional study conducted in two senior secondary schools (Tikur Anbessa and Addis Ketema) and one vocational and academic high school (Kefetagna Four) in October 2006. A calculated sample size of 379 and taking non response rate of 20% which is 75 produced us the final calculated number of study subjects of 456.This number was divided among the three studied high schools according to proportion based on the 2007 female student numbers.

Data was collected by self administered questionnaire. All female high school students in the allocated number of randomly selected classes who consented to fill questionnaire were included in the study. All filled questionnaires were collected and data was entered and analyzed using SPSS version.

Verbal consent was obtained from participants. Also students weren't compelled to return filled questionnaire and only those that were returned freely were used for analysis.

Ethical clearance was obtained from the Department of Obstetrics and Gynecology, Research and Publications Committee, Addis Ababa University.

Results

Of the 455 questionnaires provided to respondents, 394 were returned (response rate of 86.6 %). Of these, 377 female respondents were included in the study. Distribution of the study subjects with regard to school as determined by proportion sampling technique was 98 from Kefetegna Four Academic and Vocational High School, 107 from Tikur Anbessa Senior Secondary School, and 168 from Addis Ketema Senior secondary school.

Table1: Age and educational level of female respondents, Addis Ababa, October, 2006

Age group	Number	Percent
<15 years	19	5.0
15-18 years	327	86.7
>18	31	8.2
Total	377	100
Educational Level		
9	83	22.3
10	146	39.1
12	89	23.9
10+2	55	14.7
Total	377	100

The mean age of study subjects as shown in Table 1 was 16.7 (SD = 1.589) and median was 17 years. The students' age ranged from 14 years to 30 years. Most of the study subjects were Christians (80.6%). Over 60% (231) of the students live with both parents. Regarding parental education level, 35.3% mothers were reported to have primary education and 31.3% fathers were reported to have tertiary education. Of the study subjects only 23(6.3%) reported having had sexual intercourse. The rest 345 (91.5%) reported they never had any sexual intercourse. Regarding living arrangements, 233 (62.1%) of female respondents were living with parents, Only 65 (17.3%) and 13 (3.5%) female respondents were living with their mothers and fathers, respectively. The remaining 66 (17.5%) girls were living with neither of their parents (Table 2). Of the study subjects, nine (2.4%) did not respond to the question of living arrangements.

Table2. Living arrangements of female respondents, Addis Ababa, October, 2006

Age group		With mother & father	With mother only	With father Only	Other relatives	Alone	Others	Unknown	Total
<15	Count	14	4	1	-	-	-	-	19
	% within age group	73.7	21.1	5.3	-	-	-	-	100
	% within living condition	6.0	6.2	7.7	-	-	-	-	5.1
	% total	3.7	1.1	0.3	-	-	-	-	5.1
15-18	Count	205	55	10	52	2	1	2	327
	% within age group	62.7	16.8	3.1	15.9	0.6	0.3	0.6	100
	% within living condition	88.0	84.6	76.9	92.9	66.7	20.0	100	86.7
	% total	54.7	14.7	2.7	13.9	0.5	0.3	-	86.7
>18	Count	14	6	2	4	1	4	-	31
	% within age group	45.2	19.4	6.5	12.9	3.2	12.9	-	100
	% within living condition	6.0	9.2	15.4	7.1	33.3	80.0	-	8.3
	% total	3.7	1.6	0.5	1.1	0.3	1.1	-	8.3
Total	Count	233	65	13	56	3	5	2	377
	% within age group	62.1	17.3	3.5	14.9	0.80	1.3	-	100
	% within living condition	100	100	100	100	100	100	-	100
	% total	62.1	17.3	3.5	14.9	0.8	1.3	-	100

The mean age of sexual initiation was 18.5 years. Of the students that have initiated sexual intercourse, six (i.e. 26.1%, which is 1.6 % for the total) reported rape. Of the raped students two (33.3%) sought legal assistance. Only one raped case did not report because she was ashamed. The most frequently cited reason for not seeking legal assistance was not having belief in the legal system. Among the female respondents that reported sexual experience, eleven (47.8%) reported living with their biological mother and father. But it is important to note that they represented only 3% of those living with their biological mother and father.

Regarding religion, fourteen (3.9%) Christians and five (1.4%) Muslim female respondents had sexual experience.

The most common sexual harassment (i.e. being forced to stop on the road) was reported by 238 (64.9%) of the female respondents. Being kissed or touched without their consent was reported by 142 (40.0%) of cases. Repetitive beating because of unwanted sexual advance was reported by 33(9.2%) of the study subjects. Only 10(5.2%) reported to legal bodies. The others dealt with the problem by changing route to school or telling families. Of the study subjects 100(26.7%) underwent female genital cutting (FGC) and 350(92.5%) of the respondents believe that this should not be practiced.

Of the students who underwent FGC, 32% reported that their mother's can't read and write. Hence, 38.1% of the mothers who can't read and write and 11% of mothers said to have tertiary education had daughters that have undergone FGC.

Most of the study subjects 338(89.8%) assist in household work. But only 3 (0.9%) and 21 (6.2%) reported that this usually interfered with their school work, respectively.

Of the study subjects 84(22.3%) reported having a boyfriend and of only four(4.8%) reported having experienced intimate partner abuse. Of the studied students 57(15.1%) reported having experienced household violence.

As to the belief on the right of husbands to physically punish their wives; fifteen(4.0%) responded that this was appropriate.

Discussion

The rate of sexual initiation in general and the reported incidence of rape in particular of this study were 6.3% and 1.6% respectively. This is much lower than studies in Jimma and Harar. The reported rate of sexual initiation for girls was 16.3%in Jimma and 20% in Harar high schools (11,12). Another study done in Addis Ababa found that 24% of girls in high schools have reported at least having one sexual intercourse (13).

The mean age of sexual initiation was 18.5 years and this age is higher than findings in the aforementioned studies, which was 16.2 years. It is also important to note that the mean age of those who reported they never had sexual intercourse before and those who reported sexual initiation (18.5 years and 16.2 years) has also statistically significant difference ($p<0.05$). This suggests that increasing age is associated with sexual initiation in high school students.

The rate of sexual harassment is found to be higher in this study. Overall 75.9% of the study subjects reported at least one of the mentioned forms of sexual harassment as compared to 40% in a similar study in Dabat (11). To look at the details 65.3% of our study subjects reported to being stopped unwillingly on the road as compared to 22.6% in Dabat high school. The prevalence of experiencing being forcedly kissed was 38.2% as compared to 7.9% in the aforementioned study. Repetitive beating for refusing unwanted sexual advance has been found to be 9.2% and is comparable to the rate found in the Dabat study which was 7.1%. As compared to similar study conducted in Dabat FGC is higher in this population (26.7% versus 8%). But as compared to the national prevalence of 74% FGC found in the DHS 2005 it is significantly lower (14). The knowledge of students regarding the consequence of FGC is better in this study and this is to be expected in urban setting where we expect the students to have better access to information through mass media and other sources. For example for the questions "FGC can cause difficult labour" 90 % of respondents said "yes". On the other hand to the question "FGC can cause pain during menses" 61 % said "yes" whereas to the question "FGC can cause pain during intercourse" 72.4% respondents said "yes".

It was shown that maternal educational level of secondary or above was associated with less chance of having FGC ($p<0.05$). And the same is true for fathers educational level of secondary and above ($p<0.05$). Of our study group 16.5% reported some form of household violence in their homes. Of our study subjects 4% believed that husbands have the right to beat their wives for certain reasons. And this finding as compared to the DHS 2005 finding of 80% of women believing that husbands have the right to beat their wives is encouragingly lower.

The prevalence of GBV is as common as in other parts of the world and in some aspects look to be more prevalent. High prevalence and low reporting rate of GBV is worrying, as it has negative consequences not only on adolescent girls' physical and emotional wellbeing, but also a possible long lasting i9mpact on their RH.

The reported rate of rape appears to be lower than most other studies but significant under reporting cannot be ruled out. The reporting rate of both rape and other forms of sexual harassment are low. A larger multi centered study with qualitative aspects would be useful to provide better information on GBV.

The incidence of GBV is high in the studied adolescents and keeping in mind the potential consequences of this, it should gain attention by legal bodies. Having law and social support systems to aid these victims should be an immidiate task of concerned bodies.

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ORIGINAL ARTICLE:

Knowledge, attitude and practice of screening for carcinoma of the cervix among reproductive health clients at three teaching hospitals, Addis Ababa, Ethiopia

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Abstract

Background: Carcinoma of the cervix is one of the commonest cancers of women. It represents about 12%of all cancers in females, and more than half of them die from it. There are clear evidences that cytological screening programs are effective in reducing morbidity and mortality from the disease. Cancer prevention consciousness in developing countries is low and most patients seek consultation only at advanced stages.
Objective: This survey was undertaken to elicit information on the knowledge attitude and practice (KAP) of screening for carcinoma of the cervix (Pap smear) among reproductive health (RH) client a at three teaching hospitals in Addis Ababa, Ethiopia: Tikur Anbessa, St Paul's and Ghandi Memorial.
Method: - Across sectional descriptive KAP study was conducted on 276 RH clients attending emergency and regular outpatient department (OPD) antenatal, postnatal, family planning and referral clinics at the three hospitals. A structured pre-tested questionnaire was prepared and the respondents were interviewed by the principal investigator.
Results: Most respondent (81.2%) had never heard of Pap smear screening. The source of information for those who had heard about this test were health institutions for 65.4% of the respondents. Women who had heard about Pap smear screening were younger than those who had never heard of it. Only 6.5 % of all the respondent had ever had a Pap smear test. The reasons given for not having the test were: no gynecologic symptoms (41.2%); don't know the place were it was done (32.4%); wait till older (14.7%). And consider it was not important (11.8%). For those who had ever had the test, the indication for undergoing the test were doctor / nurse consultation (72.2%)and personal initiative (20.7%). Women who had a Pap smear test had higher level of education than those who never had a Pap smear. Almost all the respondents were willing to undergo the screening test in the future.
Conclusion: The awareness and practice of the screening procedure of cervical cancer (Pap smear) among RH clients in Addis Ababa is very low. There is a need for intensifying health education provision on cervical cancer screening in the city.

Keywords: Cervical cancer screening Pap smear, KAP on cervical cancer

Introduction

Cancer is the third leading cause of morbidity and mortality in developing countries followed by communicable and cardiovascular diseases (1). Globally, cancer of the cervix ranks second in frequency among all women's cancers. It is estimated than 500,000 cases of cervical cancer are diagnosed each year worldwide representing 12% of all cancer of women (2). And more than half of them die from it. Cervical cancer affects women of all races throughout their reproductive life and post reproductive period. A study done in Zimbabwe showed that cervical cancer accounts for 28.7% of all cancers in black women (3). It accounted for 80%of all reproductive system cancers, and it is responsible for about one third of all deaths due to cancer among women.

A number of studies showed the presence of an association between cancer of cervix and multiple independent risk factors. Human papiloma virus (HPV) infection of the cervix has a strong association with cervical cancer. The prevalence of HPV infection was 93.5% in clients with squamous cell carcinoma of the cervix and 90.7% in those with cervical adeno-carcinoma compared to 9.2% among non- infected controls (4, 5)

After adjusting for the strong effect of HPV, the following risk factors remained to be strongly contributory among cases of cervical cancer: early age at the time of first sexual intercourse and pregnancy, increased number of sexual partners and parity and a decreased risk with a history of a previous Pap smear test (4, 5, 6). HIV infection is an ever increasing disease affecting all citizens.

It is well recognized that immunodeficiency predisposes to the development of neoplasia including cervical neoplasia. It has been estimated that the prevalence of cervical intra-epithelial neoplasia (CIN) in HIV infected women is 29%. Center for Diseases Control (CDC), USA expanded the case definition of AIDS to include HIV positive women with cervical cancer in 1993, and CDC currently recommends that all HIV positive women should have regular Pap smear screening at least every six months (6, 7).

The accessibility of the cervix to cell and tissue studies and to direct physical examination has permitted intensive investigation on the nature of malignant and pre malignant lesions of the cervix. Their precursors may exist in a reversible phase of surface or in situ disease for many years, although this may be changing in some patients. Natural history of progression of cervical cancer takes 10 to 15 years to develop.

According to data from an American national survey, the mean age of patients with carcinoma is 15.6 years younger than of patients with invasive squamous cell carcinoma of the cervix (8).

Although this early phase may be asymptomatic, they are detectable by currently available screening methods such as Pap smear and visual inspection with acetic acid (VIA). This concept of development of cervical malignancies has convinced many that control of the disease is possible with the institution of mass cervical cytological screening.

It is also possible to decrease deaths from cervical cancer by the screening methods available and their therapeutic options (3, 8)

Cancer control is an evidence based activity consisting of primary prevention, early detection, treatment and rehabilitation. However, effective national cancer screenings programs in low resource setting s such as sub- Saharan Africa are few. There is convincing evidence that cytological screening program are effective in reducing mortality from cervical cancer. However, cervical cancer deaths in developing countries where these screening program are not available (2) The American College of Obstetrics and Gynecology (ACOG) recommends that all women who are or have been sexually active undergo annual cervical cancer screening (8). In developing countries there is low cancer prevention consciousness and most cancer patient seek consultation at advanced stages.

In view of this, cervical cancer is of public health importance because it has a high prevalence in developing countries and it is a disease that is potentially preventable and can be detected early by simple low cost technology (3). Cervical cancer screening is an important health care program were precancerous cases could be treated more successfully than the cancer itself and the program is cost effective (2, 9).

In Ethiopia, it I difficult to find any study done on the incidence of cervical cancer. But one can presume that it is perhaps a major health problem from the high prevalence of its risk factors. A community based study has indicated that more than 50% of women 30 years or older had their first birth in their teens; 27% of women ages 20 to 49 years have had sexual intercourse by age 15 (64% by age 18) and that the median age at the first intercourse for women age 20 to 49 is 16 (10). The survey also indicated that among men who had sexual intercourse 12 months preceding the survey, 3 % self reported that they had sexually transmitted infection (STIs) or experience a genital disease or sore/ ulcer.

Considering the prevalence of the risk factors for cancer of the cervix, the need for a cervical cancer screening programme is evident.

As is no national cervical cancer prevention screening program in the country and whatever screening being undertaken is opportunistic and provider initiated for the essential infrastructural and manpower requirements for such screening, knowledge, attitude and of practice (KAP) of clients is important in accessing such screening programs. In Ethiopia, there are no studies, which address the KAP of screening for cervical cancer (Pap smear testing) among RH clients at three teaching hospitals in Addis Ababa, Ethiopia and to identify socio- demographic variables affecting Pap smear testing knowledge and practice.

Method and Materials

The study was a cross sectional descriptive study on the KAP of screening for carcinoma of the cervix (Pap smear) involving among RH client at three teaching hospitals in Addis Ababa, Ethiopia.

Tikur Anbessa, Saint Paul's and Gandhi Memorial Hospitals serve as referral hospital for all health institutions in the country but mainly serve the population of Addis Ababa. During the study period, a total of about 15 senior consultants worked at the three hospitals, and the average annual deliveries at the three hospitals were 10,000. The departments of obstetrics and gynecology at these hospitals provide different services including emergency and regular gynecologic outpatient services (OPD), antenatal planning (FP) including specialty referral clinics. The study was undertaken from August to September 2006.

Informed consent was obtained from each participation for participation in to the study. All RH clients attending emergency. and regular gynecologic OPD, ANC, PNC, FP and referral clinic in the three teaching hospitals and who gave consent were include in the study. Women who were not willing to give consent, women were who were critically ill and unable to be interviewed were excluded from the study. As there is no study conducted in Ethiopia, we used the study done in Kenya to calculate sample size. This study showed that 22% of all patients had a Pap smear test (11). Using the single population proportion formula for calculating sample size with a standard normal deviate z of 1.96 and a degree of precision of 0.05 a sample size of 264 was calculated.

A structured pre-tested questionnaire was use to collect information from all RH clients in the three teaching hospitals until the sample size was taken from each hospital. The clients were approached individually and briefed about the study and asked for their consent. For who consented, date was collected by the principle investigator. Data was coded, entered, cleaned and analyzed using EPI INFO version 6 statistical packages.

Ethical clearance for conduct of the study was obtained from the Department of Obstetrics and Gynecology Research and publication Committee; Addis Ababa University personal identifiers were omitted from the questionnaire to protect the privacy of participants.

Results

A total of 276 RH clients attending emergency and regular gynecologic OPD, ANC, PNC, FP and referral clinics in the three teaching hospitals were interviewed. The socio-demographic characteristics of the respondents are shown in Table I. The mean age of the respondents' was 28.4 years (range 18-53 years). Most of the respondents (91.9%) were porous. The religion of the respondents was variable, most being Orthodox (62.3%) followed by Muslims (20.7). The respondents were from different ethnic groups: Amhara (47.8%), Oromo (23.2%), Tigre (12.7%), Guragie (12.0%) and others (4.3%).Their educational level varies from no formal education to tertiary level. With no formal education 9.4%, with primary 20.7%; with secondary 52.2%, and with tertiary 17.8%. Most of the respondents (81.5%) were married; the remainders were single (8.7%), divorced (6.2%) and windowed (3.6%). Most the respondents (59.9%) have monthly income less than 1000 Birr (about 100 USD).

Table 1: Socio-demographic characteristics of RH clients at the three teaching hospitals in Addis Ababa, Ethiopia, August-September 2006 (n = 276)

Variables	No (Frequency)	%
1. Age (Year)		
< 20	12	4.3
20-24	44	15.9
25-29	88	31.9
30-34	52	18.8
35-39	42	15.2
40-45	12	4.3
>45	26	9.4
Total	276	100
2. Parity		
Nullipara	50	18.1
Para I	68	24.6
Para II-IV	137	49.6
Grand multipara	21	7.6
Total	276	100
3. Relgion		
Ortodox	172	62.3
Protastant	40	14.5
Muslim	57	20.7
Others	7	2.5
Total	276	100
4. Ethinicty		
Amhara	132	47.8
Oromo	64	23.2
Tigre	35	12.7
Guragie	33	12.0
Other	12	4.3
Total	276	100
5. Income (Birr/month)		
< 1000	164	59.4
1000-2000	82	29.7
>2000	30	10.8
Total	276	100

Most respondents (81.2%) had never heard of Pap smear testing. From those who had heard of Pap smear, only 38 out of 52 (27.0%) had reasonably detailed knowledge of Pap smear testing. Five questions in the questionnaire were used to assess the knowledge of the respondents; and grade was given according to the number of correct answer, poor for two correct answers, good for three correct answers, and very good for four or five correct answers. The source of information for those who had heard of Pap smear were health institution in respondents (65.4%); the other significant sources of information were familiars /friends (19.2%) and radio / TV/ magazine/newspapers (15.4%) (Table 2). The women who had heard about Pap smear were younger than those who had never heard of Pap smear (P-value 0.01). The other socio-demographic characteristics of the respondents were not found to affect their knowledge about Pap smear.

Table 2: Source of information about Pap smear for RH clients at three teaching hospitals in Addis Ababa, August- September 2006 (n=52).

Information source	Frequency	%
1. Radio/TV	5	9.6
2. Hospital/Health worker	34	65.4
3. Newspaper/Magazine	3	5.8
4. Friends/Family	10	19.2
Total	52	100

Only 6.5% of all the respondents ever had a Pap smear screening test. In other words, from 52 women who had heard of Pap smear only 34.6% ever had a Pap smear test. The rest 65.4 % never had Pap smear test. The reasons given for not having the test were: no gynecologic symptoms (41.2%), don't know the place where it is done (32.4%), wait till getting older (14.7%) and considering that it is not important (11.8%) (Table 3).

Table 3- Reasons for not undertaking a Pap smear test at three teaching hospital in Addis Ababa, August-September 2006 (n= 34).

Response	Frequency	(%)
1. Don't know where it is done	11	32.4
2. Don't consider it is important	4	11.2
3. Wait till I am older	5	14.7
4. Absence of disease of disease symptoms	14	41.2

For those who ever had the test, the indication for undergoing the test were doctor/nurse consultation (72.2%) and personal initiative (27.7%) (Table 4). Women who had a Pap smear showed a higher level of education than those who never had a Pap smear (P-value0.01)

The other socio-demographic characteristics of the respondents were not found to affect client's practice about Pap smear,. All the respondents were willing to undergo the screening test in the future when information was provided on the importance of the test.

Table 4: Indication for undergoing Pap smear testing among respondents at the three teaching hospital in Addis Ababa, August-September 2006 (n= 18).

Response	Frequency	(%)
1. Doctor/ nurse consultation	13	72.2
2. Personal initiative	5	27.8

Discussion

Knowing of the respondent about Pap smear at the three teaching hospitals was very poor compared to other reported studies including those from sub-Saharan Africa. Only 18.8% of the respondents had ever heard of Pap smear testing. From those who had heard of Pap smear only 27% had sufficient good knowledge of the testing. This is much less than the finding in same developing countries including Kenya (32%) and South Africa (63.6%)(11,12)/. This may be attributed to insufficient publicity of the disease and the insufficient publicity of the disease and the limited availability of the screening test in Ethiopian. The source of information for those who had heard of Pap smear was health institutions in most respondents. This may indicate that the other potential sources of information are not well utilized. As the heath care coverage in Ethiopia is low and the test is to be conducted on health women, health institution are not the most efficient venues for raising public awareness about the test. Even from those who had of heard of the test. very few had adequate knowledge, and this may be due to the inappropriate or incomplete information delivered by health workers AKAP STUDY OF Pap smear among nurse in Addis Abeba, which showed a low knowledge among these groups of health care providers, may be evidence for this (13).

A study done on KAP of 538 rural women in South Africa in 2003 regarding Pap smear showed that approximately two-third (63.6%) of those women had heard about Pap smear screening (12). These women were significantly older (median 42 years vs.33.5 y6ears, P<0.001), had higher parity (median 3 vs. 2, p<0.001) and higher level of education (median grade 9 vs. grade 9, p<0.001) compared to those who had heard of Pap smear. Of those who had heard about the Pap smear only 55.50% had the test. The main reason given for not having a Pap smear for the rest were that

it was not suggested by the doctor or nurse (40.4%), the women was not ill felt that it was unnecessary (37.8%)and fear of some sort or another (32.5%).

In on other study conducted in Kenya National Hospital, Nairobi, Kenya, on patients about knowledge and practice of Pap smear testing; only 51% of respondents were aware of cervical cancer and 32% knew about Pap smear testing (11). In this study the source of information was health care providers in 82% of the cases. Only 22% of all patients ever had Pap smear .in rural Mexico, a study on barriers to cervical cancer screening showed that the most frequent reason for not having had a Pap smear testing was anxiety regarding physical privacy (50%)and 18% percent lacked the knowledge about the test and 14% have a difficulty in accessing healthcare (14). Women who had delivered children were significantly more likely to have received a Pap smear test (71%)than women who had no children (10%, $p<0.05$)(14). A case control study among Filipino cervical cancer cases and their control revealed that only 61% of women had heard or read about Pap smear testing (15).

In a study of knowledge and practice of cervical cancer screening among Korean-American women, 26% had never heard of the Pap smear test and only 34% reported having had a Pap smear test, and the most frequent reason for not having the test was absence of symptoms (16). A study conducted on cervical cancer screening among South Asian women in Canada showed that low level of knowledge about Pap smear testing behavior was significantly correlated ($P<0.001$) whit low level of formal education (17). A Population based study of women in Sweden on knowledge and practice about Pap smear screening program revealed knowledge and concern is age dependent, and 95% stated that they knew the purpose of screening but only 62% could indicate which type of cancer the screening actually examined (18). A study in women to assess attitude and awareness of Pap smear test and cervical cancer in UK on randomly selected women revealed 91.7% of women were of the attitude that cancer can be treated if detected early enough (19).

Younger women had better awareness of Pap smear. This is in contrast to the study done in South Africa detailed above, which showed that those women with information were significantly older. This could be due to education and more exposure to other source of information like magazine and newspapers among our younger age group of clients.

As the commonest source of information of Pap smear in our clients were health institutions. It appears that we need to utilize other important outlets such as the media to disseminate information about this important health prevention strategy.

The fact that this study showed a very low rate of knowledge and utilization of Pap smear in Addis Ababa which is the largest urban center with more educated population than in the countryside, it indicative that the situation is much worse in the parts of the country.

The practice of Pap smear testing among our clients is very low (6.5%); even much lower than the other studies done in Africa: 22% of all patients in Kenya, and 55.5% of the women in South Africa had a Pap smear test (11.12). only 34.6% of those who had heard of Pap smear ever had a

Pap smear test. This low practice of Pap smear may be explained by the incomplete knowledge about Pap smear as most respondents give absence of gynecologic symptoms and wait till older as a reason for not having a Pap smear. Additionally, the limited availability of the screening programme may contribute to this low practice rate. Encouragingly all the respondents were willing to undergo the screening test in the future.

In conclusion, the awareness of the screening procedure of cervical cancer (Pap smear) in our study population is very low but there are a lot of opportunities to increase the awareness of the Pap smear. Intensive health education of the population to increase awareness of screening procedure should be undertaken. it is also essential to employ other alternative sources of information to build appropriate awareness of Pap smear such as mass media outlets.

In order to popularize a Pap smear screening programmes in the country, important consideration have to be taken regarding the cost of the programme and the availability of infrastructure, manpower and referral linkages necessary to mange women with abnormal smears.

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ORIGINAL ARTICLE

Maternal mortality in Ambo Hospital: a five year retrospective review

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Abstract

Background: *All pregnant women are at risk of obstetric complications and most of these complications occur during labour, delivery and in the immediate post-partum period that leads to maternal deaths.*

Objective: *The aim of this study was to analyze the magnitude, causes and identify preventable factors leading to maternal mortality at Ambo Hospital, Ethiopia.*

Methods: *This was a retrospective study conducted in Ambo Hospital, Western Shoa, Ethiopia, from January 2001 to December 2005. Ambo Hospital is a zonal general hospital serving more than 2.5 million people. It has four major departments: obstetrics and gynecology, surgery, internal medicine and pediatrics. Clinical records of patients were reviewed to evaluate causative and contributing factors leading to maternal deaths. An independent obstetrician evaluated whether the cause of death was preventable or not.*

Results: *There were seventy three maternal deaths during the study period. The major causes of maternal deaths were hemorrhage in 54.8 % (40/73) of women, puerperal sepsis in 30.1% (22/73) of women, hypertensive disorders in pregnancy in 12.3% of women (9/73), and hepatic encephalopathy in 2.7% (2/73) of women. The maternal mortality ratio was 1,852/100,000 (73/3,941) live births. Of all the maternal deaths 97.3% (71/73) were direct obstetric causes while only 2.7% were due to indirect obstetric causes. Of all the maternal deaths only 11% (8/73) were booked for antenatal care. The distance from hospital to the residences of women who died was within 250 kilometers (in the range of 500 meters to 250 kilometers).*

Conclusion: *Obstetric hemorrhage, puerperal sepsis and hypertensive disorders in pregnancy are still the major causes of maternal mortality and most of these maternal deaths are preventable. There is a need to strengthen relevant reproductive health services and projects in the area to further improve the maternal health situation.*

Keywords: Obstetric complications, Prevention of maternal mortality, Avoidable maternal losses.

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Introduction

Global maternal mortality statistics reflect the widening gap between the developed and developing countries. It is estimated that 99 % of the maternal mortality is in developing countries and the underlying cause for these deaths are poverty, inadequate, inaccessible, or unaffordable health care, unequal access to resources, low status of women, inadequate information and lack of knowledge of recognizing danger signs (1).

Maternal mortality has been recognized as a public health problem in developing countries, as evidenced by an increasing number of publications on the magnitude and significance of the problem (2). In addition, efforts are now being made to sensitize health policy makers so that reducing maternal mortality becomes their top priority. National estimation of maternal mortality in most developing countries is based on limited data. This problem is most prominent in countries with higher mortality where the majority of deaths go unregistered. Where vital registration systems exist, confidential inquires into the causes of maternal deaths have been very useful in assessing the level of underreporting of maternal deaths and the magnitude of the maternal mortality problem (3).

More than 80% of maternal deaths worldwide are due to five direct causes: hemorrhage, sepsis, unsafe abortion, obstructed labour and hypertensive disorders of pregnancy. Indirect causes are due to medical conditions that in association with pregnancy precipitate fatal outcome - for instance malaria, hepatitis, and HIV/AIDS (4). In Ethiopia, according to a community based study; the main direct causes of maternal deaths were abortion, hemorrhage, and eclampsia and the principal indirect cause was infectious hepatitis (5).

Accurate assessment of the magnitude of maternal mortality is extremely difficult. The lack of data on maternal mortality has hampered the development of appropriate health policies and interventions, particularly in countries where maternal mortality is highest. At present, international organizations, national governments, and health professionals are becoming increasingly aware of the "neglected tragedy" of maternal mortality (6, 7). They are calling for more and better data management in order to be able to determine its levels, causes, and to intervene accordingly and monitor progress for preventing maternal mortality (8, 9).

The aim of this study was to assess the magnitude and causes of maternal mortality in the study area.

Methods and Materials

With the objective to determine the magnitude and causes of maternal mortality, a retrospective study of all maternal deaths in Ambo Hospital, western Shoa, Ethiopia, was conducted between January 01, 2001 and December 31, 2005. All clinical records from a logbook and charts of women who delivered and treated in the hospital during the study period **were** reviewed. The charts of all women who had died during the study period in the hospital due to complications of pregnancy and childbirth were included for review.

Maternal deaths that occurred out of the study period and women whose clinical records were lost were excluded from the study. A structured questionnaire designed for this study was used to collect all relevant information. Socio-demographic and clinical variables such as age, gravidity, parity, address, admission, diagnosis, date and time of death, and causes of death were documented. Data was entered, coded, cleaned and analyzed by using EPI-INFO version 6 statistical package. Statistical tests like Chi-square were used as appropriate. P– value less than 0.05 was considered significant.

Results

Over the period of five years, from Jan 1, 2001 to Dec 31, 2005, there were 73 maternal deaths, 3,941 live births and 370 stillbirths in Ambo Hospital making the overall maternal mortality ratio (MWR) of 1,852 per 100,000 live births. The highest recorded was in 2001 at which time there were 24 maternal deaths and 602 live births making maternal a MWR 3,986 per 100,000 live births. The lowest recorded was in 2004 with a MWR of 671 per 100,000 live births. (Table 1).

Table 1: Trends of maternal mortality, Ambo Hospital 2001 - 2005

Year	Maternal death	Total delivery	Total live birth	MMR / 100,000
2001	32.9% (24)	659	602	3,986 / 100,000
2002	12.3% (9)	867	798	1,227 / 100,000
2003	24.7% (18)	818	749	2,403 / 100,000
2004	8.2% (6)	975	894	671 / 100,000
2005	21.4% (16)	992	900	1,777/ 100,000

Age and parity analysis of maternal mortality (Table 2) shows that 30.1% of the maternal deaths are in the nulliparas and 41.1% of them are in the parity group of 2 - 4. However, 30.1% of all the maternal deaths occurred among primiparas and in 26.0% in the grand multiparas, which are recognized as high risk groups for poor pregnancy outcome. Of all the maternal deaths, 52.1%, i.e. more than half occurred among the age group 20 - 29 years of age which were considered to be low risk groups for poor maternal outcome of pregnancy. In this study, 41.1% of all the maternal deaths occurred in the age group of 30 and above while only 6.8% of the deaths occurred in the group of 20 and below.

Table 2: Age and parity distribution of maternal deaths in Ambo Hospital, 2001-2005

Age	Parity				
	0	1	2-4	5 or >	Total
19 or <	4	-	1	-	6.8% (5)
20 - 24	14	1	6	-	28.8% (21)
25 - 29	2	-	13	2	23.3% (17)
30 - 34	1	1	8	7	23.3 (17)
35 - 39	1	-	2	8	15.1% (11)
40 or >	-	-	-	2	2.7% (2)
Total	30.1% (22)	2.7% (2)	41.1% (30)	26% (19)	100% (73)

Among all the maternal deaths only 11% had antenatal care while 38.4% of them didn't have antenatal care. However, for 51.6% of them their antenatal booking record was missing. Of all the maternal deaths 97.3% were direct maternal deaths while only 2.7% were due to causes not directly related to pregnancy. Of the direct maternal deaths hemorrhage constituted the commonest causes of maternal mortality (54.8%) followed by puerperal sepsis (30.2%) and hypertensive disorders of pregnancy (12.3%). Uterine rupture was the underlying cause of hemorrhage while obstructive labor and unsafe abortions were the underlying causes for sepsis. Table 3 shows the trends of specific causes of maternal mortality as a proportion of all maternal deaths during the study period. Ruptured uterus served as the major underlying cause of hemorrhage throughout the study period except in 2004. Puerperal sepsis was the second most common cause of maternal deaths. Unsafe abortion contributed the lowest proportion for maternal deaths throughout the study period.

Table 3: Trends of major causes of MMR as a proportion of all deaths, 2001 - 2005

	Ruptured uterus	Unsafe abortion	Hemorrhage	Puerperal sepsis	Preeclampsia/ Eclampsia	Others	Total
2001	41.6% (10)	8.3% (2)	20.8% (5)	12.5% (3)	12.5% (3)	4.1% (1)	100% (24)
2002	55.5% (5)	11.1% (1)	11.1% (1)	22.2% (2)	-	-	100% (9)
2003	27.8% (5)	11% (2)	16.7% (3)	33.3% (6)	5.5% (1)	5.5% (1)	100% (18)
2004	-	-	33.3% (2)	16.7% (1)	50% (3)	-	100% (6)
2005	31.25% (5)	-	25% (4)	31.25% (5)	12.5% (2)	-	100% (16)

Age and parity analysis for specific causes of maternal mortality showed that majority of deaths are due to uterine rupture and all occurred among the multiparas. Over 50% of women in the age group 20 to 29 years died from obstetric complications and hemorrhage was the leading cause of death (Table 4). About 80% of maternal deaths due to hypertensive disorder of pregnancy occurred in the primiparas (Table 5).

Table 4: Distribution of causes of maternal death by age, Ambo Hospital, 2001 - 2005

	Obstetric Complications						
Age	**Ruptured uterus**	**Unsafe abortion**	**Hemorrhage**	**Puerperal sepsis**	**Eclampsia**	**Indirect cause**	**Total**
15-19	4% (1)	-	-	11.8% (2)	22.2% (2)	-	6.8%(5)
20-24	16% (4)	60% (3)	7.1% (1)	35.3% (6)	55.6% (5)	100% (2)	28.8% (21)
25-29	16% (4)	20% (1)	64.3% (9)	11.8% (2)	11.1% (1)	-	23.3% (17)
30-34	32% (8)	-	28.6% (4)	29.4% (5)	-	-	23.3% (17)
35-39	24% (6)	20% (1)	7.1% (1)	11.8% (2)	11.1% (1)	-	15.1% (11)
40 or>	8% (2)	-	-	-	-	-	2.7% (2)
Total	100% (25)	100% (5)	100% (15)	100% (17)	100% (9)	100% (2)	100% (73)

Table 5: Distribution of causes of maternal death according to parity, Ambo Hospital, 2001-2005

Parity	Obstetric Complications						Total
	Ruptured uterus	Unsafe abortion	Hemorrhage	Puerperal sepsis	Eclampsia	Indirect cause	
0	-	60% (3)	13.3% (2)	52.9% (9)	77.8% (7)	50% (1)	30.1% (22)
1	-		-	5.9% (1)	-	50% (1)	2.7% (2)
2-4	56% (14)	20% (1)	53.3% (8)	17.6% (3)	11.1% (1)	-	37% (27)
5 or >	44% (11)	20% (1)	33.3% (5)	23.5% (4)	11.1% (1)	-	30.1% (22)
Total	100% (25)	100% (5)	100% (15)	100% (17)	100% (9)	100% (2)	100% (73)

Table 6 depicts the distribution of maternal deaths by road distance from the stated address of mothers from Ambo Hospital. About 46.6% of the mothers came from within a distance of 100 km, from Ambo hospital, 45.2% came from within 100 - 250 km, and in 8.2% of the cases, the address of the mothers were not registered. When we look at the time of hospital stay, nineteen mothers (26%) died within less than one hour of hospital stay after arrival and twenty (27.4%) mothers died within 01 - 12 hours of hospital stay.

Table 6: Distribution of maternal deaths by distance of address from Ambo hospital

Address	Distance in kilometer	Number of maternal deaths	Percentage of maternal deaths
Ambo town	< 01	4	5.5%
Ambo, Dandi, Tikur woreda (district)	1-50	17	23.3%
Jalidu, Ejere, Walmera, woreda	51-100	13	17.8%
Chaliya, Adeaberga, Dano woreda	101-150	14	19.2%
Metarobi, Gindeberet woreda	151-200	12	16.4%
Horo woreda	201-250	7	9.6%
Address not traced		6	8.2%
Total		73	100%

Discussion

This study provided an overview of the maternal mortality status in a rural hospital setting. Health institution based MMR are considered higher than community rates because of the high risk status and complicated cases of mothers delivering in hospitals. The overall MMR of 1,852/100,000 live births is considerably higher than the 671/100,000 live births of the national maternal mortality reported in the year 2005 Ethiopian Demographic Health Survey (10). The MMR estimated in this study is well comparable with a study done in Jimma hospital which was 1,965/100,000 live births (11). According to Mekbib et al, at Ambo Hospital, patients with obstructed labor comprised 39% of all obstetric patients making the leading cause of hospitalization followed by obstetric hemorrhage which was 24% of all admissions (12).

The Ethiopian Society of Obstetricians and Gynecologists in collaboration with the International Federation of Gynecology and Obstetrics (FIGO) conducted the "Save the Mothers Project-Ethiopia" in West Shoa Zone Ambo Hospital from 1998 to 2003 with the objectives of reducing maternal deaths by promoting the availability, access and utilization of emergency obstetric care (EmOC) services for women with complications of pregnancy and childbirth (12). During this period the case fatality rate (for direct maternal deaths) decreased from 7.2% at baseline to 4.6% at endline showing a definitive trend of improvement. The maternal mortality in this rural hospital is surprisingly much higher than that found in Addis Ababa hospitals which was 1,028/100,000 live births in 1995 and 999.4/100,000 live births in 1999 (13, 14). The obvious problem in generalizing from hospital-based studies is that only selected sample of women deliver in a hospital and more women who are suffering from serious complications of pregnancy are more likely to be hospitalized.

Among all the maternal deaths, primiparas and grand multiparas contributed to the majority of maternal deaths. In primiparas the major cause of maternal death was puerperal sepsis with the underlying obstructed labour followed by eclampsia. In grand multiparas the major cause of maternal death was obstructed labour resulting in ruptured uterus. These parity groups are a possible target area for intervention to reduce maternal mortality. This is also in agreement with studies done under similar settings (15, 16).

The direct obstetric causes of maternal deaths in this study are hemorrhage, sepsis and hypertensive disorders of pregnancy and remain to be major causes of maternal mortality as demonstrated in similar studies from developing countries. Like the study from Jimma Hospital which found ruptured uterus to be responsible for the leading cause of maternal deaths (33.2%), this study also showed uterine rupture being responsible for 34.2% of maternal deaths. On the contrary, the contribution of unsafe abortion for maternal death was found to be very low in this study compared to other studies.

Among the 73 maternal deaths only eight (11%) had ANC, 28 (38%) had no ANC and for the rest ANC status was not mentioned.

Four mothers who died were from Ambo town and 69 mothers were from outside Ambo town. Among all the mothers who were from outside of Ambo town only 37.7% were referred from a health institution while the rest were self-referrals. Of these mothers who came from outside Ambo town 43.5 % (30/69) came from a distance of within 100 kilometers and 47.8% (33/69) had to travel a distance of 101 - 250 kilometers seeking medical care in the hospital.

Nineteen out of seventy three mothers (26%) died in less than an hour of arrival in the hospital. This definitely contributed to the high figure of the MMR of the hospital, and inclusion of these deaths in the calculation could be debatable.

There are factors that contribute to delay in preventing deaths among women with obstetric complications. Obtaining medical care for women with obstetric complications begins with the recognition of danger signs. Access to such information and understanding of the gravity of symptoms, such as bleeding or prolonged labour; help a woman and her family to seek timely treatment. Even when women and their families recognize danger signals and understand the need for medical care, they believed that there was nothing much that the medical facility could do for her. The reasons being no trained doctor or nurse-midwife, blood and oxygen supply shortages were regular and equipments remaining frequently nonfunctional. These are facts round the year in many of health facilities in the country. Thus people didn't bother to seek medical care when they believed that their patient probably will not be cured, or even likely to die in the hospital (17, 18, 19).

A consensus exists within the international community that maternal mortality can be reduced by the provision of the following four elements: 1) Skilled attendance at all births, 2) Basic EmOC in peripheral units, 3) Comprehensive EmOC in referral hospitals, and 4) Rapid transport of women in need of special care (20).

The death of a woman in childbirth is a tragedy, an unacceptable and wasteful event that carries with a huge burden of grief and pain. Pregnancy is not a disease and pregnancy related morbidity and mortality are preventable. Maternal mortality as shown in this study is unacceptably high and women continue to suffer from pregnancy related complications that are preventable mainly because of a failure at the peripheral health units in managing obstetric emergencies. The major causes of maternal deaths in this study are hemorrhage with the underlying causes of uterine rupture and postpartum hemorrhage, sepsis due to prolonged and obstructed labour, and hypertensive disorders of pregnancy. The reason behind this is the persistent tradition of deliveries in domiciliary settings in unsafe and unhygienic conditions by untrained or poorly trained birth attendants.

Lack of awareness about obstetric emergencies among women and community combined with inaccessible terrain and lack of emergency transportation significantly contributed towards avoidable and unnecessary deaths. To mitigate the problem effectively at all levels, planning and execution of an effective interventional strategy is required. Improving maternal care services, referral systems and transportations like ambulances from

peripheral clinics to the hospital is a possible strategy among others.

This study has its own limitations and showed only the ''tip of the iceberg''. Therefore, a larger study for reviewing and auditing all maternal deaths in the country is recommended to develop effective strategy to address this serious problem.

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ORIGINAL ARTICLE

Quality of reproductive health services at private for-profit institutions in Addis Ababa

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Abstract

Background: *Private for-profit health institutions are expanding, and making considerable contributions to improve health care for significant number of population. Their crucial share in reproductive health (RH) services in this area is growing rapidly. Assessing the quality of service being provided by the private sector particularly in the area of RH provision has paramount importance.*

Objective: *To assess the quality of RH services at private for-profit health institutions in Addis Ababa and to provide programmatic recommendations.*

Methods: *A descriptive cross-sectional study was conducted to assess the quality of service using a structured questionnaire through client exit interview, service provider interview, observation of client-provider interaction, provider's technical competence and using a checklist for inventory of equipment and supplies of health institutions. The study was conducted from April to December 2006.*

Result: *Ten private for profit health institutions were included in this study. A total of 411 clients who came to receive RH services including family planning (FP), antenatal care(ANC), delivery services, postnatal care(PNC), post abortion care(PAC) and sexually transmitted infection (STI) management were studied. Among others fourty six service providers were interviewed and 76 observations of client-provider interactions were made. Overall 91.2% exit interview respondents reported satisfaction with services they received. In multivariate analysis, satisfaction of clients was lower for those women who reported waiting for a long time without getting the service (OR=0.07, 95% CI: 0.03, 0.16), those who were not treated politely (OR=0.04, 95% CI: 0.01, 0.11), those who did not get satisfactory response for their questions (OR=0.02, 95% CI: 0.01, 0.08),and those with short consultation time (OR=0.13, CI: 0.05, 0.31). All of the study institutions had basic equipment and supplies for the services. Majority of the providers received basic training in RH services. Inadequate supervision, less use of IEC materials, and missed opportunity for VCT services was identified as a problem.*

Conclusion: *Improving the use of IEC materials, refresher training and supportive supervision for the service providers by responsible authorities are recommended. It is suggested that creating a mechanism to reduce long waiting time can improve client satisfaction.*

Keywords: Private for profit health sector, quality reproductive health services, Supportive supervision

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Introduction

Each year, there are approximately 25 maternal deaths for every 100,000 live births in more developed regions of the world and this rate increases to 440 in less developed regions due to hemorrhage, hypertensive disorder of pregnancy, obstructed labor, unsafe abortion and infection which accounts for 80% of maternal deaths (1). Maternal mortality ratio in Ethiopia is 673 deaths per 100,000 live births, which is one of the highest in the world (2).

The role of private for-profit sectors in the provision of health services in developing countries is growing. The low budget allocated to governmental health services associated with public sector inefficiency and the increasing demand for modern health services, which the governmental health services couldn't meet are considered as the main reasons for proliferation of the private sectors in those countries (3).

In Ethiopia, the government has been the major source of funding for the health sector like in many other developing countries. However, the amount allocated to these sectors has been very low (4). Encouraging the private for-profit health sector is believed to relieve the government by shifting some of the patient load thereby freeing up government funds to serve those who cannot afford to pay for the services (5).

Improving quality of RH services offer many benefits; information and service will be accessible, clients make informed decisions and the public will have a more positive view of health care and its providers. Good quality service helps individuals and couples meet their RH needs safely and effectively (6).

Assessing the quality of service delivery in health facilities is receiving growing recognition as a strategy for monitoring and evaluation of primary health care programme in developing countries. Recently the idea of quality improvement has been used in managing health services (7). It is measuring the gap between the qualities of care as perceived by the service providers and as perceived by the clients. Quality of care to some providers may mean efficient care which reduces mortality and morbidity and less attention given to women's perception. Thus a quality service ought to give special emphasis to women's experience, expectations, and level of satisfaction with the service to complement with the views of the service providers (8).

Improving quality of care requires a focus on the process of service delivery, including communication and information sharing; establishing minimal standards for procedures and examinations and ensuring that clients receive the service appropriate to their needs (9). The quality of RH care is critical in determining whether the service meets clients' expectations. Clients need a choice of services, accurate and complete information, technically competent care, good interaction with providers, continuity of care, and a constellation of related services. These elements apply equally to most of the components of RH care.

The presence of high maternal mortality and morbidity in our country should necessitate measures to decrease death and suffering of mothers. Although private for-profit health institutions are growing in number in our country, the expansion of these sectors is expected to ease the burden on public sectors and improves the quality of care. To achieve the millennium development goals, these sectors contribution is very critical. Thus the assessment of service quality gives information for improvement.

The objectives of this study are to assess client satisfaction, the service delivery set up and the technical competence of health workers.

Methods

A descriptive cross-sectional study was conducted at private for-profit health institutions in Addis Ababa. The study included all clients in reproductive age group (15-49) who came to the sampled private health institutions for RH services including FP, ANC, delivery, PNC, PAC, and STI management at the time of data collection. The institutions were selected using simple random sampling from private hospitals and special gynecology and obstetric clinics. There are 401 private for-profit health institutions found in Addis Ababa. From these 94 are higher clinics, 107 are lower clinics, 103 are medium clinics, 78 are special clinics and 19 are private hospitals. A total of 10 health institutions were selected based on rule of thumb in sampling for quality of care study (11). The selection was only from hospitals and special gynecology and obstetric clinics because comprehensive RH care services were provided in these institutions.

The questionnaires were pre-tested in two other private for-profit health institutions on 5% of the sample. Corrections and modifications were made based on the results of the pre-test before finalizing the questionnaire. The corrected questionnaires were distributed for the actual data collection. The supervisors checked for completeness of the questionnaires and made overall coordination. The collected data were checked for completeness and consistency each day by the principal investigator.

Exit interview- A total of 422 clients were interviewed for the service they came by non-probability quota sampling method till the sample size reached. They were interviewed after completing examination at the out patient department (OPD) level and just before discharge for the inpatients. The sample size for the exit interview was determined by using single population proportion formula.

Observation- Observation was made on 20% of the cases of exit interview.

Provider interview- Provider interview included all health professionals involved in client management who were gynecologists and obstetricians, general practitioners, nurses, and midwives.

Data was collected using structured questionnaire developed from the WHO safe motherhood needs assessment. The questionnaire for client exit interview comprised of socio-demographic variables, and quality related variables and questions on RH care from each components of RH.

The questionnaire was prepared in English then translated into Amharic and then into English to ensure consistency. For the client exit interview, five twelve grade complete female data collectors were recruited and trained on data collection.

Observation of client-provider interaction at OPD, ward, procedure room, and counseling room was done by nurses who had training on FP, counseling, delivery service, PAC who were working in government institutions. The data collectors wore white coat while they were observing. The observers obtained permission from both providers and clients.

Provider interview was done by self administered questionnaire which was written in English. The questionnaire included background of providers, socio-demographic variables, and relevant trainings. Checklist for inventory was used to assess availability and use of equipment in examination room, procedure room, laboratory and operation theatre.

The questionnaires were coded after completeness were checked then the data were entered to SPSS version 11.0 software program. Cleaning of data was performed and recoding of some variables was done. Frequency distributions, percentage, mean, median were calculated and cross tabulation for satisfaction with some variables were made. Then chi-square test to determine the presence of association and odds ratio to assess the strength of association were used. Multiple logistic regressions were used to control confounding.

Ethical clearance was obtained from Addis Ababa University (AAU), Faculty of Medicine Ethical Clearance Committee. Letter of cooperation was written to Addis Ababa Health Bureau (AAHB) from the Department of Community Health, AAU. Letter of support was obtained from AAHB to the private health institutions. The principal investigator provided orientation to the health institutions management and staffs about the purpose of the study. Study subjects were asked for their participation verbally and those who were willing were included in the study. As much as possible privacy and confidentiality was maintained.

Results

Socio-Demographic characteristics

A total of 422 clients were users of RH services and eligible for this study were interviewed. However, out of these eligible, 11 clients were not willing to be interviewed making a response rate of 97.4%. The mean age of the respondents was 26.5 years (SD $\pm$ 4.4) with age ranging between 17 and 41 years. The majority of participants 182(44.3%) were in the age group of 25 – 29 years and 114(27.7%) were in the age group 20 - 24 years. Three hundred thirty seven (82.0%) were married and 49(11.9%) were single. The majority of the clients 390(93.2%) attended formal education.

Amhara were 164 (39.9%), 93(22.6%) were Oromo, 68(16.5%) were Gurage and 50(12.2%) were Tigre ethnic group. The greater number were Christians out of whom Orthodox Christian constitute 242(58.9%), and the rest 98(23.8%) were Muslim by religion. The occupational status of the clients showed that

204(49.7%) were either governmental or private employee, 97(23.6%) were housewives, 68(16.5%) were merchants and the rest were students or those without jobs (Table 1). The median monthly income of the family was 950.00 Birr. From the interviewed clients, about two third (66.9%) of the clients had children. The mean number of children delivered by a woman was 1.7(SD ± 0.9) with a minimum of one child and a maximum number of six children.

Table 1: Socio-demographic characteristics of RH service clients at private for-profit institutions, Addis Ababa, September 2006.

Variables	Number	Percent	Variables	Number	Percent
Age Mean (26.5± 4.4 SD)			**Ethnic group**		
15-19	22	5.3	Amhara	164	39.9
20-24	114	27.7	Oromo	93	22.6
25-29	182	44.3	Gurage	68	16.5
30-34	73	17.8	Tigre	50	12.2
35+	20	4.9	Others	36	8.8
Total	411		Total	411	
Education			**Religion**		
Illiterate	7	1.7	Orthodox	242	58.9
Read and write	14	3.4	Muslim	98	23.8
Primary	36	8.8	Protestant	46	11.2
Secondary	130	31.6	Others	25	6.1
Above secondary	224	54.5	Total	411	
Total	411		**Occupation**		
Marital status			Private employee	103	25.1
Married	337	82.0	Government employee	102	24.8
Single	49	11.9	House wife	97	23.6
Cohabiting	16	3.9	Merchant	68	16.5
Others	9	2.2	Student	27	6.6
Total	411		Unemployed	14	3.4
			Total	411	

From the total 411 respondents, 181(44.0%) came to the health facility for ANC, 89(21.7%) came for FP service, 83(20.2%) for PNC, 25(6.1%) for delivery service, 18(4.4%) for PAC and 15(3.6%) came for STI management.

A total of 76 clients were observed from all the study institutions while interacting with their service providers. Fourteen clients each from FP, ANC, delivery, PAC and 10 from PNC and 10 clients who came for STI management were observed.

From the interviewed clients, half of them (51.3%) came for the first time to use the specified service and the remaining came for revisit.

Exit Interview

The exit interview of the respondents with regard to their opinion on service providers showed that 386(93.9%) of clients claimed that the time they spent with the service providers was adequate. The majority of clients 384(93.4%) reported that they were politely treated by the service providers and 390(94.9%) of clients said that the way they were handled by supportive staffs was good. About 320(77.9%) of clients reported that they raised questions to the providers and out of whom 94.4% became satisfied with the responses they received. Four hundred (97.3%) stated that their privacy was maintained(Table 2)

About one fourth (27.7%) of clients said that it took them less than 30 minutes to reach the institution from their residence, 263(64%) from 30 minutes to 1 hour and 34(8.3%) took them more than 1 hour. Almost all of them used cars to reach the institutions. Ninety two (22.4%) of clients waited less than 30 minutes to get the service, 227(55.2%) of them waited from 30 minutes to 1 hour and 92(22.4%) of them waited for more than 1 hour till they got the service. The mean waiting time was 30 minutes. Two third (68.9%) of the clients said the waiting time was reasonable.

From a total of 411 clients interviewed, about 91.2% of them expressed their overall satisfaction with the service they were given and about 95.9% of them would like to recommend and encourage others to come and use the service at the institution. Clients were asked if they had comments on general service provision of the institution using open ended question and 60% of them said it was good, 15% had no comment, 12% had commented on the waiting time, and 8% of them commented on the cost.

Analysis of overall satisfaction of clients by socio-demographic variable and quality related variables were done. Based on the multivariate analysis study participants who experienced long waiting time were less satisfied than those who said the waiting time was good (OR=0.07, 95% CI: 0.03,0.16). Clients who were not treated politely by the providers were less satisfied than those who were treated politely (OR=0.04, 95% CI: 0.01, 0.11). Those who did not get satisfactory response for their questions were less satisfied (OR=0.02, 95% CI: 0.01, 0.08) and those with short consultation time were less likely to be satisfied than clients with adequate consultation time (OR=0.13, 95% CI: 0.05, 0.31) (Table 3).

Table 2: Interaction between service providers and RH clients at private for-profit institutions, Addis Ababa, September 2006

Variables	Number (n=411)	Percent
Politeness of the provider		
Very polite	326	79.3
Polite	58	14.1
Fair	17	4.1
Not polite	4	1.0
No response	6	1.5
Reception of supportive staffs		
Very good	271	65.9
Good	119	29.0
Not good	11	2.7
No response	10	2.4
Consultation time		
Adequate	386	93.9
Short	16	3.9
Long	1	0.2
I don't know	8	2.0
Privacy maintained		
Yes	400	97.3
No	11	2.7
Client asked questions		
Yes	320	77.9
No	91	22.1
Got satisfactory response(n=320)		
Yes	302	94.4
No	18	5.6

Observation

The interaction of providers and clients that was evaluated during observation of 76 clients showed that 73(96.1%) of clients were greeted politely and respectfully by the providers. Seventy five (98.7%) of clients asked questions and all of them got response from the providers. The average consultation time was 25 minutes with a minimum consultation time five minutes and a maximum of one hour (Table 3)

Table 3: Relation of socio-demographic variables and quality related variables by service satisfaction, Private for-Profit institutions, Addis Ababa, September 2006.

Variable	Satisfaction		COR* 95%CI***	AOR**95%CI***
	Yes	No		
Age				
15-29	293	25	1	1
30+	82	11	0.64(0.30,1.35)	0.65(0.30,1.41)
Education				
Illiterate	14	7	1	1
Literate	361	29	1.76(0.21,15.0)	1.40(0.13,14.5)
Occupation				
Employed	248	25	1	1
Unemployed	127	11	1.16(0.56,2.44)	1.21(0.56,2.61)
Service use				
New	190	21	1	1
Repeat	185	15	1.36(0.68,2.73)	1.32(0.66,2.66)
Waiting time				
Good	303	8	1	1
Very long	72	28	0.07(0.03,0.16)	0.07(0.03,0.16)
Provider politeness				
Polite	367	23	1	1
Not polite	8	13	0.04(0.02,0.10)	0.04(0.01,0.11)
Got Satisfactory answer				
Yes	287	15	1	1
No	5	13	0.01(0.01,0.04)	0.02(0.01,0.08)
Consultation time				
Adequate	360	27	1	1
Short	15	9	0.13(0.05,0.31)	0.13(0.05,0.31)
Cost				
Reasonable	115	9	1	1
Expensive	260	27	0.75(0.34,1.65)	0.82(0.34,1.95)

*Crude odds ratio, **Adjusted odds ratio, ***95% confidence interval

Access to services

Even if all of the institutions were giving a 24 hour service, the official opening hour was at 8:00 a.m. in the morning. There were visible signs that indicate the availability of RH services in all institutions. Service charge was not listed and posted at visible sites in all the institutions.

More than two third (69.8%) of the clients said the service they got was expensive for them and the remaining said it was reasonable.

Information provision

The sources of information about RH services given in the private for-profit institutions was from previous or current service users in 162(39.4%) of cases, 121(29.4%) from friends, 68(16.6%) from mass media and 34(8.3%) from health professionals. About 370(90%) of clients said that they had received the information and services they had come for. Three hundred twenty seven (79.6%) of clients were told about danger signs that may necessitate re-visiting the health institutions for check up. Three hundred sixty four (88.6%) of clients were given appointment for the next visit. The providers discussed about the issue of HIV/AIDS with 105(25.5%) of clients. From the exit interview, 76(18.5%) of clients said the providers used IEC materials while discussing about their case (Table 4).

Table 4: Information provision to RH clients, private for-profit institutions, Addis Ababa, September 2006

Variables	Number	Percent
Client exit interview		
Used IEC materials		
Yes	76	18.5
No	333	81.0
No response	2	0.5
Appointment for follow up		
Yes	364	88.6
No	47	11.4
Revisit the facility for danger sign (complications)		
Yes	327	79.6
No	84	20.4
Discussed about HIV/AIDS		
Yes	105	25.5
No	302	73.5
No response	4	1.0
Observation (n=76)		
Informed about procedure		
Yes	42	55.3
No	34	44.7
Used IEC material during consultation		
Yes	20	26.3
No	56	73.7
Discussed about HIV/AIDS		
Yes	16	21.1
No	60	78.9

Providers discussed about the issue of HIV/AIDS with 105 clients. Out of these 26(29.2%) clients came for FP, 40(22.1%) were that of ANC, 11(44%) clients came for delivery service, 8(9.6%) clients came for PNC, 10(55.5%) clients came for PAC and 10(66.7%) came for STI management.

Quality of care by services sought

Family Planning

About 91% of clients who came for FP services reported that they were informed about the range of available FP methods, their function and usage. Half (56.8%) of clients received injectables, 35.2% received pills, 4.5% received condom, 2.3% received Norplant, and 1.1% intrauterine contraceptive device. About two third of clients (65.9%) reported that they chose the contraceptive methods by themselves, while 5.7% reported that they were influenced by the service providers. The study showed that 85% of clients received information about side effects, and 90.9% of clients were informed what to do if problem arises.

Antenatal Care

From a total of 181 ANC attendees who participated in the exit interview, about half (49.2%) started ANC visit at their first trimester, and 90(49.8%) during their second trimester. The median duration of pregnancy at the first ANC visit was 4 months. Blood pressure and weight was measured in 100% and 99.4% of cases, respectively. None of the study clients were measured their height. Two third of the ANC attendees (69.1%) were given iron tablets. Danger signs during pregnancy were told for 159(87.8%) of cases and what to do if complication arises. All of the attendees were told when to come back for the next appointment. Among the 143 pregnant women who had decided where to deliver, 126(88.1%) preferred the same health institution. The reasons cited to deliver in the particular health institutions were high quality of services in 60% of the cases, and good health workers in 39.2% of the cases.

Delivery Service

All 25 clients but one who came for delivery services, said the delivery room was clean. They were satisfied with providers' politeness during labour and delivery. During labour and delivery half of them requested for fluid and they all were supplied. Nine clients asked to be accompanied and only half of them were allowed. Twenty two clients were told about the advantage of breastfeeding. The providers discussed about FP with 18 clients. Twelve clients (48%) were given vitamin A after delivery before they were discharged. Twenty three clients were told when to come back for PNC visit. For all of the observed clients fetal and maternal conditions were followed during labour and delivery. Except in one hospital other facilities were not using parthograph to follow labouring mothers.

Postnatal visit

From a total of 83 clients who came for PNC service, 67.5% of them gave birth in the same health institution where they were interviewed. More than 96% of them were advised about the advantages of breastfeeding and 75.9% were told about the advantages of sunshine exposure for the baby.

Providers discussed about FP with 56(67.5%) clients. Half of the clients reported that they were using contraceptive methods at the time of the interview. From these 11(29.7%) used lactational amenorrhea method and another 11(29.7%) used abstinence. Half of them were advised to take iron pills during the postpartum period.

Post abortion care

Out of a total of 18 clients who came for PAC, 17 of them were asked about previous use of contraceptive methods and 17 clients about trial of termination of pregnancy. For 12 (67%) clients, providers counseled about contraception and only three clients took contraceptive methods.

STI management

All of the 15 patients who came for STI treatment were asked about the presence of similar problem in the past. All of them were sent to laboratory examination for confirmation. Twelve patients were told to inform their sexual partner about the illness and that he should be treated. Providers discussed about condom usage only with nine clients. All of the clients were given treatment.

Characteristics of service providers

A total of 46 health professionals were interviewed. From these 15(32.6%) were gynecologists, 7(15.2%) were general medical practitioners, 14(30.4%) were nurses, and 10(21.8%) were midwives. Twenty one (45.7%) were male and 25(54.3%) were female providers.

Thirty (65.2%) of the service providers attended refresher training on HIV/AIDS counseling, FP counseling, STI treatment, PAC and infection prevention. Thirty three (71.7%) of the providers had work experience above 5 years.

Service providers were observed while examining 76 clients. From these 61(80.3%) of the clients were seen by obstetrician/gynecologists, others with general medical practitioners, nurses, and midwives. Providers greeted 75 (98.1%) of their clients respectfully and offered a seat for 62(81.6%) clients. However, only two providers were seen while introducing their names. The providers phrase the questions clearly for 73(96.1%) clients. Only 47(61.8%) of the clients were assured by the providers that all information will be confidential. Providers used non-technical terms while communicating with 59(77.6%) clients, and appeared to rush while examining twelve (15.8%) clients. Providers conducted procedure for 73(96.1%) clients and they informed about the procedure ahead of time or during the procedure for only 42(55.3%) clients. Providers gave emotional support while examining 44(60.3%) clients and looked neutral while doing procedure for 20(27.4%) clients. The procedure was performed under sterile condition by using sterile gloves, and sterilized instruments in 28(38.4%) cases. Providers washed their hands before and after any procedure for 37(48.7%) clients. But almost all used alcohol swab after examining clients. During consultation providers used IEC materials for 11(14.5%) clients. They used posters for 10(13.2%), pamphlets for nine (11.8%), models for nine (11.8%), sample for nine (11.8%) and for only one client they used

flip chart to explain about the clients' health condition.

Facility and Equipment

The majority of clients 404(98.3%) said the waiting room was clean and all of them stated that there was adequate water supply and toilet service at the waiting area. In all of the institutions the record keeping area was in a secure place, which was not easily reached by any other person except staffs working there. All of them had basic equipment and supplies for the services. IEC materials on STI/HIV, pregnancy complications, FP were available in all of the institutions. Backup electricity supplies with generators were present in eight study institutions. In some of the departments, sink and running water were absent. Basic laboratory tests were done in all institutions. HIV testing and counseling was available in all but one institution. In all of the study institutions incinerators were observed for waste disposal. All of the institutions had supervision at least once in two years by Addis Ababa Health Bureau, Drug administration and Control Agency (DACA), and Radiation Protection Agency (RPA) for those having X-ray service. The study institutions all felt that the supervision was supportive. Eight institutions had means for emergency transportation for referral cases. Nurses or midwife usually accompany emergency referral cases. In 60% of the study institutions there was clear written job description for the staffs. Clients opinion was determined using client suggestion box in all study institutions. One health institution in addition to client suggestion box used staff members to collect client opinion. But in all of them there was no regular client exit interview. Staff meeting and internal evaluation were the methods for determining providers' opinion. Staff suggestion box was available only in one of the health institutions.

Discussion

This study examined the RH care services at private for-profit health institutions in Addis Ababa. In this study, females in the age group of 20 – 29 years were regular users of RH services at private health institutions. A significant number of clients of these health facilities were women who were in high demand for RH services particularly FP and ANC. The majority of clients 93.2% attended formal education which is higher than previous studies done in Addis Ababa government hospitals and Bahir Dar where it was only 70% and 61.8% respectively (10, 11). The occupational status of most of the clients in this study was government and private employee.

The interaction of service providers and clients from the exit interview showed that 93.4% were treated politely. Only 1% of clients claimed that they were not treated politely. However, according to a study done in government hospitals in Addis Ababa, 9% of the clients were not treated politely by the providers (11). This might be due to competition among private health facilities and limited patient overload in the for-profit health institutions.

Client-provider interaction as was seen from the exit interview of clients indicated that it was generally good. In this study 94.4% of clients got satisfactory answer for their questions. This finding

was higher than the study done in Bahir Dar which was 83.8% (10).

About one fourth of clients claimed that the waiting time for service was very long. This was higher than the studies done in Bahir Dar and Jimma, which were only 13.8% and 10.9% of clients, expressing dissatisfaction in waiting time respectively (10, 12). This was also higher than a study done in Addis Ababa private clinics with only 4% of clients dissatisfied of the waiting time (13). This study shows a mean waiting time of 30 minutes which was lower than the study in Bahir Dar (48 minutes) and Jimma (31.7 minutes) (10,12). Clients in private health institutions are very sensitive to long waits compared to those in government health facilities. In this study the average consultation time was 15 minutes which was higher than studies in Bahir Dar (3 minutes) and Jimma (3.1 minutes) (10, 12). Ninety four percent of clients said that the time spent with the providers was about right.

Signs indicating the availability of RH services were posted in all of the observed health institutions. It was better than studies done in Bahir Dar and Addis Ababa government health institutions (10, 11).

Even if limited amount of IEC materials were available in all the study institutions, they were not used to give better awareness to clients. Clients were not provided with pamphlets to read at home. Audiovisual services are available in all institutions' waiting area but in only one of the institutions the video was showing health related program during our data collection period. The IEC materials availability in study sites was more than those of other studies done in government health institutions in Ethiopia (10,11, 12,).

About half of the clients were informed about the procedure they were going to be offered. This figure was higher than the study done in Addis Ababa government hospitals (11). The difference might be due to less patient overload in private health institutions where service providers get more time to interact with the clients.

In this study, appointment for follow-up was given for 88.6% of clients. But 99.5% clients from Family Guidance Association of Ethiopia (FGAE) clinic were told when to return for next appointment [14]. This could be as a result of the fact that all clients needed follow-up for refill.

Privacy was maintained for 97.3% of clients but in the Bahir Dar study it was 70.1% (10). This might be due to separate rooms with good compartment and minimal patient overload in some of the study institutions.

About one-fourth of the clients had discussion with the service providers about the issue of STI and HIV/AIDS. This was higher than the study conducted in Addis Ababa government health institutions (11). This might be due to the widely available VCT and ART service in the town.

In this study, about 69.8% of clients said that the service was expensive, although most of them were satisfied with the service despite the high price.

A study conducted in Nepal showed that clients were not price sensitive, and they selected providers primarily upon perceived or expected quality of care (15). But a study done in Addis Ababa private clinics to assess the general quality of health care showed that there was lower satisfaction with the cost (13). This might be due to the majority of the clients being ANC attendees who came every month and pay only for examination and for some laboratory tests.

Over 26.1% of the contraceptives were chosen by the client and her husband but only 5.7% were influenced by service providers. A study done in FGAE revealed that 75% of clients chose the method themselves and 22.9% of them were influenced by providers [14]. This might be due to the high educational status of the clients and being aware of the service. In this study the preference for pills and injectables was prevalent and also the finding showed that clients were least informed about permanent methods.

In this study, half of the clients started ANC follow up at first trimester of their pregnancy. This figure was higher than the study done in Arsi zone (32.5%) and study done in Addis Ababa (26%) (16, 17). This might be due to increased awareness about the benefit of ANC follow-up. Concerns about VCT were raised only for 22.1% of ANC attendees. There may be missed opportunities for PMTCT.

Over 91% of clients expressed their satisfaction with overall service provision of the institutions compared to a study done in FGAE clinics which was 89% of clients (14). About 95.9% of clients said they would recommend and encourage others to use the services at a given health institution. The same study done in FGAE revealed that 91% of clients would recommend and encourage friends and relatives to use the service .

All of the service providers' basic training included RH care services, and 65.2% of the service providers attended refresher training.

All of the study institutions have basic equipment and supplies for the services. Supervision by higher institutions was inadequate and was made every one to two years by Addis Ababa Health Bureau, DACA, and RPA. Only one of the study institutions was supervised six months before the data collection time. Study done in Bahir Dar, Jimma, and Nigeria showed that there was poor supervision (10,12, 18).

The findings of this study revealed that, the general service provision at private for-profit health institutions was found to be good but there are areas which need to be improved for providing better quality of services. Majority of the clients were satisfied with the general service delivery and their interaction with the service provider. Long waiting time in some institutions was one of the sources of client dissatisfaction. Almost all the study institutions had basic equipment and supplies to provide RH care services. IEC materials were found to be inadequate and audiovisual materials were not used to educate clients about health issues. There are missed opportunities for reaching the clients with VCT, PMTCT, and FP information and services. Inadequate supervision by responsible

authorities was noted as an area of weakness.

Based on the findings of the study, the use of IEC materials for the clients during their visit needs to be improved. Linking other RH services with VCT and FP services is very important. Refresher training on relevant topics like infection prevention, PAC, PMTCT and counseling should be given for the service providers. Supportive supervision mechanism by responsible authorities to maintain the quality of services should be strengthened.

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ORIGINAL ARTICLE

Stillbirth at Tikur Anbessa Hospital a retrospective study

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Abstract

Background: *Stillbirths are believed to contribute to the overwhelming majority of perinatal mortality in some developing countries. Though the facilities and expertise for perinatal post mortem examination are lacking in Ethiopia, studies have indicated that useful information could be obtained from careful review of clinical records.*

Objective: *This study is aimed at identifying probable causes, comparison of selected fetal and maternal variables between cases and controls and suggests possible preventive options.*

Methods: *This study was a retrospective comparative study of stillbirths with sex matched live births. It was conducted at Tikur Anbessa Hospital. Addis Ababa, Ethiopia from Sept. 11, 2000-Sept. 10 2001, based on information retrieved from individual patient records and using a structured data entry format. The main study variables were maternal socio-demographic features, antenatal care(ANC) attendance, and gestational age of index pregnancy, birth weight, modes of delivery and probable causes of stillbirths.*

Results: *The stillbirth rate (SBR) was 55.3/1000 births and contributed to 77.2% of the gross perinatal mortality (GPNM). ANC attendance (85.7%) and residence in Addis Ababa (82.3%) were significantly higher among controls than cases which had corresponding figures of 69.4% and 55.1%, respectively. There was a statistically significant difference in low birth weight (40.5%) and preterm (32.1%) stillbirths than controls with the respective figures of 15% and 11%, respectively. Mechanical factors were the commonest probable causes of death accounting for 44.2% of all stillbirths, while 21.8% were unexplained stillbirths and ante partum hemorrhage contributed to 15.7%.*

Conclusion: *It is suggested that proper antenatal and intra partum care can reduce stillbirth.*

Keywords: Stillbirth rate, peri-natal mortality, intra-partum care

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Introduction

Stillbirth is defined as babies born with no signs of life after the 28th completed weeks of gestation or a corresponding birth weight of 1000 grams when the gestational age is unknown. The stillbirth rate in Africa is largely unknown because of the very few studies done. A hospital based study in western Kenya reported a stillbirth rate of 30.5 per 1000 births (1). The same study showed that intrapartum asphyxia was responsible for 45.8% of all stillbirths. A prenatal and maternal death review by Frost at Tikur Anbessa Hospital(TAH) in 1980 indicated a stillbirth rate of 52.6 per 1000 births (2). Perinatal mortality is accepted as one of the most sensitive indicator of levels of obstetric and neonatal care in a given community (3).

A perinatal mortality survey conducted at Ibadan University College revealed that 74% of the perinatal mortality were due to stillbirths. Clinico-pathological analysis of causes of death of the same study indicated that cephalopelvic disproportion, antepartum hemorrhage, malpositions and malpresentations contributed to a significant proportion of the perinatal deaths (59.8%). In the same study, it was shown that 65% of the stillbirths occurred before admission and 35% after admission to hospital (4). Woods *et al* also indicated that aprubtio placentae, gross amniotic fluid infection and severe congenital abnormality were the commonest causes of stillbirth in Cape Town (5).

The proportion of stillbirth was generally reported to be very high in the lower weight group (6,7,8). Male stillbirths numbered from 110 to 120 for every 100 female stillbirths, and the ratio has recently declined to 1.08. This affects all causes of death with the exception of congenital malformation where females predominate by about 2 to 3 (9, 10)

Fetal maceration is said to suggest only a very approximate estimate of period of fetal death and onset of labour is usually delayed if the fetus dies before term (6, 11). The ratio of fresh stillbirth to macerated stillbirth was 7.7:1 and 0.6:1 for mothers who had ANC attendance at least once and those who had not, respectively (1). However, Were found the lowest stillbirth rate in mothers older than 35 years (1).

Studies have shown that good number of stillbirths could be prevented by identification of pregnancy at risk and fetal surveillance (12). This study is designed to explore correlates, probable causes of stillbirth and provide recommendations for appropriate diagnosis and timely intervention.

Methods and Materials

Records of all stillbirths and matched live births were retrieved from Tikur Anbessa Hospital (TAH) archives after identification of mothers' names and record numbers on the labor ward log book from Sept. 11, 2000 up to Sept 10, 2001. Cards were retrieved by employees of the hospital. Information on the cards was entered into a predesigned data collection format, which consisted of maternal demographic characteristics, antenatal care status of the index pregnancy and fetal birth outcome variables.

Ethical clearance was obtained from research and Publication Committee of the Department of Obstetrics and Gynecology, Faculty of Medicine, Addis Ababa University.

To estimate sample size P1 and P2 were taken from unpublished report from the Department of Obstetrics and gynecology, Addis Ababa University.

P1 = BVD among SB =17% and

P2=BVD among LB= 7%

Using the single population proportion formula for calculating sample size with a standard normal deviate Z of 1.96 and a degree of precision of 0.05, a sample size of 96 was calculated.

Inclusion and Exclusion Criteria

All stillbirths delivered during the study period plus randomly selected live births delivered on the same day and having the same sex as the stillbirths were included in this study.

Poorly documented records or undocumented records, gestational age less than 28 weeks and a birth weight less than 1000 grams when the corresponding gestational age is unknown, served as exclusion criteria.

Data were entered into a computer after coding. EPI INFO version 6 statistical package was used for data analysis. Information generated was presented using tables, percentage, proportions, odds ratio, and confidence interval and P values.

Results

A total of 3793 deliveries were included in this study. Out of these deliveries, 210 were stillbirths making the stillbirth rate 55.3/1000 births. Records of 185 stillbirths were identified making the card retrieval rate 88%. Of these 148 cases were selected for analysis based on the inclusion criteria and calculated sample size.

The mean gross perinatal mortality rate (PMR) was 102.8/1000 births. Stillbirths accounted for 77.2 % of the gross PMR. There were 57.8% male and 42.2% female stillbirths making the male to female ratio 1.4: 1. The fetal heart beat was absent on admission in 131 (89.1%) of stillbirths, while 16 (10.9%) had positive fetal heart beat on admission. Birth weight and gestational age distribution is illustrated in Table 1. The mean birth weight was 2543$\pm$820 grams for cases and 3029 $\pm$544 grams for controls (P<0.05). The mean gestational age for cases and controls were 37.7$\pm$3.85 weeks and 39.2 $\pm$2.45 weeks, respectively (P<0.05). Gestational age was unknown in 63 (42.9%) of the cases and 35 (23.8%) of controls (OR=2.4). Preterm were seen more frequently in the cases of 27 (32.1%) than 13 (11.6%) controls with P<0.05. There was a statistically significant difference in low birth weight between 60 (40.8%) stillbirths and 22 (15%) controls P<0.05.

Table 1: Birth weight and gestational age distribution of stillbirths and controls

Variables	Cases		Controls		T. Value	P. Value
	No.	(%)	No	(%)		
I. Birth weight in grams	17	(11.6%)	1	(7%)		
< 1500	22	(14.9%)	2	(12.2%)		
1500-1999	21	(14.3%)	18	(2%)		
2000-2499	84	(57.1%)	118	(80.3%)		
2500-3999	3	(2.1%)	7	(4.8%)		
≥4000						
Mean birth weight in ± SD	1543± 820		3029± 544		5.99	(<0.05)
II. Gestational age in wks						
< 29	5				1	
30-32	5				2	
33-35	12				4	
36-38	18				22	
39-42	40				81	
>42	4				2	
Unknown	63	(42.9%)			35	(23.8%)
Mean gestational age ±SD	37.7±3.85		39.2±2.45		3.46	(<0.05)

Addis Ababa was residential address of 121 (82.3%) of controls and 81 (55.1%) of the cases (P<0.05). ANC attendance was significantly higher among controls 126 (85.7%) compared to 102 cases (69.4%) P<0.05) (Table 2). Maternal age greater than 35 years was higher in the cases than controls and this was statistically significant (P<0.05). The mean maternal age was 26.6±5.98 years for cases and 25.9± 4 for controls (P=0.297). An increased trend of stillbirths was seen for maternal age beyond 35 years which was statistically significant (OR=2.83).

Table 2: Comparisons of stillbirths and controls by selected maternal and fetal variables

Variables	Cases		Controls		OR	95% CI
	No	(%)	No	(%)		
Maternal Address						
Addis	8.1	55.1	121	82.3		(0.15 - 0.47)
Out of Addis	66	44.9		17.7	0.26	
ANC attendance						
Yes	102	69.4	126	85.7		
No	45	30.6	21	17.7	0.33	(0.17 -0.64)
Gestational age in weeks						
< 37 weeks	27	32.1	13	11.6		
> 37 weeks	57	67.9	99	88.4	3.61	(1.62-8.13)
Birth weight in grams						
< 2500	60	40.8		15		
> 2500	87	59.2	125	85	3.92	(2.15-7.18)

Table 3: Maternal age and parity distribution for cases and controls

	Cases		Controls				
Characteristics	No	(%)	No	(%)	OR	95% CI	t-value	p-value
I. Maternal age							
15-24	52		(35.4%)	56	(38.1%)	1	
25-34	74		(50.3%)	82	(56.5%)	0.96	.57-1.61
35-44	21		(14.3%)	8	(5.4%)	2.83	1.07-7.67
Mean maternal age +SD	26.6+5.98		25.9±4.9			1.044	0.297
II. Parity							
I	87		(59.2%)	73	(49%)	1.0	
II	23		(15.6%)	29	(19.7%)	0.67	(0.34-1.31)
III	6		(4.1%)	27	(18.4%)	0.19	(0.06-0.51)
IV	12		(8.2%)	.5	(3.4%)	2.01	(0.62-9.1)
≥ V	19		(12.9%)	13	(8.9%)	1.23	(.53-2.84)
Mean parity +SD	2.88±2.23		3.12±1.56			1.05	0.29

The mean maternal parity was 2.1±1.6 and 1.9±2.1 children for cases and controls, respectively. An increased trend of stillbirths was also seen as maternal parity exceeds three.There was a statistically significant result in para four mothers between 12 (8.2%) cases and 5(3.4%) controls with OR=2.01.(Table 3).

Higher breech vaginal delivery (BVD) was observed in 19 cases (12.5%) than controls OR=3.28. Possible causes of stillbirths in decreasing order of frequency were mechanical 65 (44.2%), unexplained 32 (21.8%), and antepartum hemorrhage (APH) 23 (15.7%).

There was no statistically significant difference in the low birth weight and preterm stillbirths between those cases who had positive fetal heart beat on admission and those who had no fetal heart beat on admission. Stillbirths with positive fetal heart beat on admission had no explicable causes in eight (50%), while cord prolapse, complications of pre-eclampsia and eclampsia were possible causes for others. It is elicited that 61(46.7%) of stillbirths with absent admission fetal heart beat were due to mechanical causes. It is computed that 13(40.6%) stillbirths of unknown cause were low birth weight and the corresponding figure for preterms was three (13.6%) (Table 4) Previous history of stillbirths was elicited in 18 (12.2%) of cases compared to six (4.1%) of controls (OR=3.7).

Table 4: Comparisons of stillbirths of unknown cause by weight and gestational age

Variables	Stillbirths of unknown case		Stillbirths of known case		OR	95% CI
	No	%	No	%		
1. Birth weight in grams						
< 2500	13	(40.6%)	47	(40.9%)		
≥ 2500	19	(59.4%)	68	(59.1%)	1.01	0.42-2.42
2. Gestational age in weeks						
< 37 weeks	3	(13.6%)	22	(36.7%)		
≥ 37 weeks	19	(86.4%)	38	(63.8%)	3.67	17.6

Discussion

This study showed stillbirth to be a common occurrence at Tikur Anbessa teaching hospital accounting for a stillbirth rate (SBR) of 55.3/1000 births. This compares favorably with 52.6/1000 in 1980 observed at TAH (2), and a 69.7/1000 from a Nigerian study (4), in contrast to a Kenyan study that has reported a lower stillbirth rate of 30.5/1000 births (1).

The Gross perinatal mortality rate (GPNMR) was 102.8/1000 comparable to a Nigerian study of 112.6/1000 (4). Stillbirths were also found to be responsible for 77.2% of GPNMR, while a similar study at TAH revealed a 68.5% contribution to perinatal death of 11(2). The contribution of stillbirths to GPNMR in an African study was 74% (4). All of them indicating stillbirths to take the lions share of the GPNMR.

The stillbirth rate in rural Ethiopia could be much higher than the rate in this study. A greater proportion of controls in this study were from Addis Ababa (82.3%) and had higher ANC attendance rate (85.7%) than the cases with corresponding figures of 55.1% and 69.4%, respectively. This could indicate the role of access to health care facilities in the prevention of stillbirths.

In this study, there were statistically significant number of mothers with advanced age above 35 years (14.3%) and higher parity of four (21%) in the cases than controls. This finding was seen from studies both in the developed and developing countries (12,13), which might indicate the greater chance of accruing chronic illness, congenital malformations, and high rate of obstetrical complications like APH with increasing age and parity. Pre-terms (32.1%) and low birth weight (LBW) (40.8%) were seen quite frequently among cases compared to controls, which had significantly lower pre-terms 16.6% and 15%, respectively. This could probably be due to the lower economic status of women with its associated adverse health consequences and poor prenatal and intrapartal care. While spontaneous vaginal delivery (SVD) was the commonest route of delivery for both cases (43.5%) and controls (49.5%), BVD was significantly higher in cases (12.5%) than controls (3.4%). Two Kenyan studies also revealed a higher BVD rate for stillbirths 15.1% and 10.8%, respectively (1,14). This could be explained by frequent associations of breech with LBW, prematurity, congenital malformations and its inherent nature to end up in a poor perinatal outcome.

Caesarian section was the second most frequent route of delivery 41(27.9%) for controls compared to craniotomy and laparotomy for ruptured uterus (26.4%) for the cases, thus showing the important contribution of obstructed labor in causing stillbirths. Ventouse delivery for cases and controls were two(1.4%) and eight(5.4%), respectively. Mechanical factors were the most important causes of stillbirths in 44.2% of the cases, while previous studies from Addis Ababa and Nigeria reported 31.9% and 35.6%, respectively (2,4). The increase in mechanical causes of stillbirths in this study could be due to handling of large

number of complicated labor since the hospital is serving as a referral center. APH accounted for 21(15.7%) of the stillbirth causes; of this antepartum accounted for 16(10.9%) and postpartum seven (4.8%).

There were 17 (11.5%) hypertensive disorders of pregnancy (HDP). About nine (6.1%) of the HDP occurred from eclampsia and the rest eight (5.4%) from preeclampsia. Anencephally four (2.7%) and multiple malformation four (2.7%) are the two causes of congenital anomalies eight (5.4%) contribution. Rhesus isommunization accounted for one(1.4%) of the causes of stillbirths and unexplained causes accounted for 32(21.8%) of stillbirth possible causes.

In this study 21.8% of the stillbirths had no explicable causes whereas unexplained stillbirths in a Kenyan study were 26.4% (1).

The reduction in unexplained stillbirth rate in this study may be due to a better record keeping, attempt to identify causes or higher number of referrals with mechanical problems. The contribution of congenital anomalies for stillbirths was 5.4% which is similar to that of a Kenyan study (5.2%) (1). The male to female ratio for congenital malformation was 1 to 7, which is lower than a 2 to 3 ratio mentioned by Morrison (7).

Last menstrual period (LNMP) was unknown in a significantly greater number of cases 63 (42.9%) than controls 35 (23.8%) [OR=2.4]. This finding corroborates an Ethiopian study that uncertainty of LNMP was significantly related to adverse pregnancy outcomes that is high PMR, LBW, and spontaneous preterm deliveries which were independent of unfavorable maternal characteristics (15). Previous history of stillbirths was much more frequently elicited in 18 cases (12.2%) than in six controls (4.1%) [OR=3.28]. This makes the stillbirth recurrence rate 19% higher than a 7% recurrence rate stated in other studies (16). The higher stillbirth recurrence rate in this study could be due to the lower ANC attendance in the cases, which could have helped in identification of respective causes and initiation of appropriate plan of management both in the antepartum and intrapartum period. History of maternal disease like diabetes, HDP was also frequently observed in 20(13.6%) cases than six (4.1%) controls, for which the aforementioned explanation could apply as well. SVD is a frequently applied mode of delivery in both 64 (77.1%) cases and 72(93.5%) controls than 19(22.9%) BVD cases and five (6.5%) controls. The Fetal presentation shows vertex cases were 117(79.6%) and 130 controls (88.4%). Breech cases were 20 (13.6%), which was more frequent than 12 control (8.5%). There were no cases of brow but only one (0.7%) in the control group. Face had the second least cases which were three (2%) and one controls (0.7%) than the aforementioned variables.

Stillbirths are the most important determinants of GPNMR at TAH Maternal age above 35 years, parity of $\geq$ 4, having no ANC, living out of Addis Ababa, history of chronic maternal disease, previous history of stillbirths and unknown LNMP were important maternal factors associated with stillbirths. Moreover, mechanical factors were also the major causes of stillbirths. LBW, prematurity and BVD were highly

associated with stillbirths. Thorough history taking and proper examination of products of conception were useful at arriving at the most probable cause of stillbirths.

Provision of appropriate antenatal and intrapartum care will help in identifying avoidable maternal and fetal factors associated with stillbirths making timely intervention or referral possible. Every attempt should be made to make comprehensive emergency obstetric care (EmOC) within the reach of laboring mothers, especially for those coming out of Addis Ababa, as mechanical factors are the most important cause of stillbirths.

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