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Assessment of Quality and Determinant Factors of Post-Abortion Care in Governmental Hospitals of Tigray, Ethiopia, 2013

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Abstract

Background: Unsafe abortion is one of the leading causes of maternal mortality and morbidity worldwide accounting for 13% of maternal deaths globally.

Objective: To assess quality and determinant factors of post-abortion care in governmental Hospitals of Tigray, Ethiopia.

Method: Institution based Cross-sectional study was conducted from January to May 2013. Four hundred twenty post apportion care clients were interviewed and 60 clients were observed to obtain qualitative data. Data was collected using pre prepared structured checklist and analyzed using SPSS version 16.00. The association between dependent and in dependent variables was assessed and presented using descriptive statistics, and logistic regression.

Results: Majority (46.9%) of the study subjects fall in to the age category of 14-19 years. The study depicted that only 40.6% of the clients were satisfied. Client satisfaction was significantly associated with educational and occupational status, laboratory prescription and toilet access. Only 48 % of study subjects were informed about the available family planning methods and supplied with. The observational study revealed that 88.3% of the clients did not get the opportunity to pose questions or concerns. Only one of the health institutions has functional sink with adequate water supply in the abortion room. No more than 22.2 % of the care providers got refresher training on relevant areas.

Conclusion: This study has identified main concerns that could have great input on the improvement of post abortion care. Hence, we can conclude that patient satisfaction is low and there is lack of refreshments trainings especially on counseling and supporting. Besides, there are shortage of materials and supplies. This all could have synergetic effect on compromising the quality of post abortion care. For this reason, it is recommended to skill up the providers with evidence based trainings to enhance quality of post abortion care.

Keywords: Post abortion care; Quality; Cross-sectional; Tigray; Ethiopia

Abbreviations:

ART: Anti-Retroviral Therapy; D&C: Dilatation and Curettage; GBV: Gender Based Violence; IEC: Information Education Communication; LMP: Last Menstrual Period; MVA: Metallic Vacuum Aspiration; PAC: Post Abortion Care; OPD: Outpatient Department; OR: Operation Room; TT: Tetanus Toxoid; MDG: Millennium Development Goals

Introduction

Millions of pregnancies end in abortions every year, leading to death and permanent disability, with an estimated 5.2 million women seeking treatment [1,2] for short and long term morbidities including uterine perforation, chronic pelvic pain, and secondary infertility [3].

Unsafe abortion is one of the leading causes of maternal mortality and morbidity worldwide accounting for 13% of maternal deaths globally [4,5]. In sub-Saharan Africa, up to 50 percent of gynecological beds are occupied by patients with abortion complications [6].

In the vast majority of African countries, abortion remains both unauthorized and unsafe. Safe procedures are accessible only to wealthier and more educated women, leaving the poor, and often marginalized, women to suffer disproportionately [3]. What is most disconcerting is the fact that unsafe abortion in some countries affects young women and teenagers. Approximately, 40% of all unsafe abortions are performed on young women aged 15 to 24 years [7,8].

Ethiopia is one of the developing countries with contraceptive prevalence of less than 15% [4] and highest maternal mortality rate estimated to be 673 per 100,000 live births. The main contributing factors for this high death toll include unsafe abortion among others. Several studies in Ethiopia indicate that unsafe abortion may account for up to 25 to 35 percent of the maternal deaths [9-11]. Safe abortion

services have been unavailable throughout much of Ethiopia's modern history. The 1957 penal code allowed abortions only to save the life or health of the woman. Combined with low rates of contraceptive supplies, use, and high rates of sexual violence, the restrictive law compelled many Ethiopian women to seek out the services of unskilled, back-street abortion providers [12,13].

To respond to the problem in an efficient way, Ethiopia had developed a comprehensive PAC approach in 1991. The approach included emergency treatment of incomplete abortion and its complications, family planning counseling and services, and linking the emergency treatment along with other reproductive health services. Recently, the post-abortion care consortium developed an expanded and updated model which includes two more elements, i.e., providing appropriate counseling based on individual needs and community-provider partnership in prevention of unsafe abortion and care [14]. Ethiopian Parliament passed one of Africa's most progressive abortion laws. The new penal code added indications for rape, incest, fetal abnormality, and a woman's physical or mental disabilities. The Parliament also approved abortion for minors physically or psychologically unable to care for a child. No consent from spouse, partner or parent is required to obtain a legal abortion and no requirements exist for legal reporting or documenting rape or incest as prerequisite for obtaining a legal abortion [12,13].

At the Millennium Summit in 2000, countries committed themselves to achieving the Millennium Development Goals (MDG) by 2015. The MDG-5 on Maternal Health, which calls for a 75% reduction in MMR (maternal mortality rate) compared to its 1990 level, cannot be achieved without addressing the issue of unsafe abortion as it constitutes one of the important causes of maternal deaths. Hence, the overall work of the study assessed quality and determinant factors of post-abortion care in government Hospitals of Tigray.

Materials and Methods

Study design and period

An institution based cross-sectional study triangulating both quantitative and qualitative methods was conducted. The study has assessed the quality of PAC service and client satisfaction, providers' technical competence, availability of equipment and supplies on Governmental Hospitals of Tigray Ethiopia from January to May 2013.

Sample size and Sampling technique

Four hospitals were selected randomly out of 13 government hospitals found in Tigray using lottery method. The case load of each selected hospitals was determined for proportional allocation of the sample size. The sample size (n) was calculated to be 422 based on the assumption of 50% prevalence of clients' satisfaction with outpatient health services in Tigray Hospitals, expected margin error (d) of 0.05 at 95% confidence level (Za /2), and 10% of non-response rate. Sampled clients receiving PAC service were interviewed with local language.

Data collection and analysis

Standardized, structured questionnaire was used for the interview. A checklist was adopted from Pathfinder International for data collection using observation. Interviewer administered questioner was used to gather the required information. Aside to the client satisfaction, convenience of the service hour was also assessed by interviewing PAC clients as it was indicated as factor for client satisfaction by many literatures. SPSS software version 16 was used for the analysis. After the data collection, it was checked for its completeness and internal consistency and analyzed using descriptive statistics. Crude Odds Ratio (COR) and Adjusted Odds Ratio (AOR) with 95% confidence interval from bivariate and multi-variate analyses were used to measure association between dependent and independent variables.

Variables

Dependent Variable

- Quality of PAC
- Client satisfaction

Independent Variables

- Socio demographic status
- Waiting time to get hospitals' outpatient services
- Client provider relationship
- Payment status
- Access and availability of materials and drugs
- Range of services

Quality control measures

All data collection instruments were pretested at one of the PAC service delivery sites. As part of the pre-test, PAC providers were interviewed, inventory was made for the supplies and equipment. Ten percent of sample size was employed for pretest and revision to the data collection instrument was subsequently made. To avoid bias the data was collected by nurses who have ever been trained on PAC.

Ethical consideration

Ethical clearance was obtained from Mekelle University college of health sciences, Research and community service office to conduct the study. Further permission was obtained from Regional Health Bureau of Tigray, Medical Director of each selected Hospital and the department head of the obstetric ward. Informed verbal consent was also obtained from the clients before commencing the study and confidentiality was also assured.

Results

Socio-demographic characteristics

With 99.5% of response rate, Four Hundred Twenty (420) participants were involved in this study. The age of the respondents ranged from 14 to 39 years accounting for 46.9% of the cases. Majority (64.8%) of the respondents receiving PAC were found to be single at the time of the study. Considerable proportion (50.7%) of the study subjects had attended 7-12 grades. Meanwhile, 72.4% of the client did not have job during the time of study (Table 1).

Regarding the payment status, 94.0 % of the respondents were not paying to get PAC service. Of the total PAC clients, 75.2% reported that it was for the first time that they came to get the service while their counterpart claimed repeated visit (Table 1).

Satisfaction indicators

After getting in the hospitals, 62.14% were not able to easily find the PAC service areas like card room, examination room and laboratory, and for this reason they were not fully satisfied. Two hundred eighty two (57.6%) of the study subjects reported dissatisfaction in regard with respect and courtesy given by the care givers. Even though 316 (75.24%) of the clients were satisfied with privacy, client satisfaction about assuring confidentiality was only 83(19.76%). Overall, 59.4 % of the clients expressed their dissatisfaction with the general services (Table 2).

Variables	Frequency	Percent
Age		
14-19	197	46.9
20-24	112	26.7
25-29	75	17.8
30-34	25	6.0
35-39	11	2.6
Marital Status		
Single	272	64.8
Married	89	21.2
Divorced	46	10.9
Widowed	13	3.1
Educational status		
Illiterate	86	20.5
1-6 grade	114	27.1
7-12	213	50.7
Diploma and above	7	1.7
Occupational status		
Don't have job /student Merchant	304 94	72.4 22.4
Government employ	17	4.0
Farmer	5	1.2
Payment status		
Free	395	94.0
Paid	25	6.0
Frequency of visit		
Once	316	75.2
Repeated	104	24.8

Table 1: Socio-demographic characteristics of post abortion care clients in government hospitals of Tigray Ethiopia, 2013

Availability of services

Variables		Frequency (N)	Percent (%)
Satisfaction with the locating PAC service	Fully satisfied	159	37.86
	Not fully satisfied	261	62.14
Satisfaction with the courtesy & respect	Fully satisfied	138	32.86
	Not fully satisfied	282	67.14
Satisfaction with privacy during examinations	Fully satisfied	316	75.24
	Not fully satisfied	104	24.8
Satisfaction with the measures taken to assure confidentiality during examinations	Fully Satisfied	83	19.76
	Not fully satisfied	337	80.24
Possibility of getting of toilets access near to PAC room	yes	188	44.8
	No	232	55.2
Satisfaction with the cleanliness of the toilets? (N=188)	fully satisfied	34	18.09
	not fully satisfied	154	81.91
Any drugs and supplies ordered	Yes	336	80
	No	84	20

Table 2: Satisfaction of clients receiving post abortion care services in selected governmental hospitals of Tigrai, Ethiopia, 2013 (Fully satisfied means very satisfied and satisfied, not fully satisfied means neutral and dissatisfied)

Three hundred ninety two (93.1%) of the study participants responded that the service hour is convenient to them. After arrival in the health facilities, 36.7% of the participants claim that the time range from admission to the actual treatment was less than 1 hour, while the remaining reported 3-6 hours. On the other hand, waiting time for 51.7% of the respondents was 1-2 hrs to see health care providers.

Forty two percent of the clients were prescribed for laboratory investigations out of which 63.4%got the laboratory service inside the indexed hospitals. From the PAC clients who were prescribed for laboratory, 46.8% reported that they waited for 1-2 hour duration to get their results. During the study period, 232 (55.2%) clients reported that they were able at get the access for toilet around the PAC service room. Moreover, related drugs were administered to 80% of the clients.

Logistic regression for predictors of post abortion care service

From the multivariate analysis adjusted for age and marital status appeared that PAC service satisfaction to be associated with educational status, occupation, and laboratory order. It appears that participants with higher educational status i.e. 1-6 grade, and 7-12 grades were 0.3 times [AOR (Adjusted odds ratio) =0.33, 95% CI (confidence interval) of 0.10, 1.06] and 0.1 times [AOR=0.1, 95% CI of 0.01, 0.17] more satisfied than the females who were illiterate, respectively. Besides, mothers who are employed and merchants were 1.3 times [AOR=1.3, 95%CI of 0.27, 6.51] and 7 times [AOR=7.2, 95%

CI of 1.35, 38.19] than the mothers with no job, respectively. Moreover, mothers who were not prescribed for laboratory and/or ultrasound services in the index were 18 times more satisfied than those who were sent out side to get the service [AOR= 17.8, 95 CI of 6.53,48.65]. To this end, accessibility of toilet service was also found to be an important factor. Accordingly, clients who got toilet service were 1200 times more satisfied than who did not get that service [AOR=1200, 95% CI of 132.34, 11330] (Table 3).

Variables	Satisfaction		OR (95% CI)	
	Yes	NO	COR	AOR
Educational statues				
Illiterate	11(12.79)	75(87.21%)	1	1
Grade 1 – 6	27(23.68)	87(76.37%)	40.9(4.49, 372.75)	0.33(0.10, 1.06)
Grade 7 – 12	43(20.9)	170(79.81%)	19.3(2.23, 167.74)	0.1(0.01, 0.17)
Occupation				
Governmental employee	9(59.94 %)	8(47.06%)	0.3(0.09, 0.70)	1.3(0.27, 6.51)
Merchant	9(9.57 %)	85(90.43 %)	2.8 (1.34, 5.86)	7.2(1.35, 38.19)
No job	69(22.7%)	235(77.3%)	1	1
Laboratory and/or ultrasound ordered				
Yes	55(28.5 %)	138(71.5%)	1	1
No	32(14.1 %)	195(85.9 %)	2.4(1.50, 3.97)	17.8(6.53,48.65)
Access of toilet				
Yes	1(0.43 %)	233(99.57 %)	198.4(27.25, 1.44)	1200(132.34,11330)
No	86(45.99 %)	101(54.01%)	1	1

Table 3: Logistic regression of predictors of satisfaction for post abortion care clients in government Hospitals of Tigray, Ethiopia, 2013

Professional competency and training

Out of the 18 health care providers participated in this study, 2 were gynecologists, 3 general practitioners 8 diploma nurses and 5 diploma midwives. Of these, only 22.2 % of them got either of the following trainings; PAC service, MVA (Manual vacuum aspiration), Misoprostol administration, Contraception/Family Planning and Counseling.

Observation

A total of 60 clients were observed for the purpose of qualitative data. Surprisingly, during the initial contact, none of the providers introduced themselves to the patients prior to the procedures. Besides, majority (88.3%) of the clients did not get the opportunity to pose questions and concerns. Of the study subjects, 67.6% and 71.6% were asked about LMP (Last Menstrual Period) and reproductive history, respectively. On the contrary, medical and surgical history taking and checking of vital sign and bimanual examination were performed only for 3.4%, 15 % and 20 % the clients respectively. Meanwhile, none of the clients were screened for GBV (Gender Based Violence) (Table 4).

Pain management and Post procedure

41(68%) of the clients experienced pain during the procedure and acetylsalicylic acid (Aspirin) and Ibuprofen was administered to 29 (48.3%) clients. Besides, 54 (90%) of the clients were given antibiotics like ampicillin and benzyl pencillin alternatively after procedures. Majority (88.3%) of the study subjects were informed about danger signs especially bleeding before they left the health facilities. Only 48 % of the study subjects were informed about the available family planning methods and were supplied with. On top of that, clients were not explicitly informed about when fertility could return after abortion and none of the health care providers demonstrated to the clients how to use condoms. Besides, discussion on preventive measures such as Tetanus Toxoid (TT) vaccination was not done even to a single client.

Preparation for procedures

The study finding also indicated that all of the care providers wore sterile gloves, however, only two (11.1%) of them washed hands with water and/soap before gloving and performing the procedure. Meanwhile, most of them except one provider did not wear goggles and protecting boots and apron.

Range of services provided

While assessing the range of services that has been provided in all of the facilities, MVA technique & medical abortion were alternatively used for abortion according to the personal preference, professional competency of the provider and availability of the drug (Misoprostol). On contrary, D&C (Dilatation and Curettage) was no more in use during the data collection.

Rooms, instruments and medication

The availability of internationally recommended equipment and supplies in the health facilities to fulfill the basic requirements were assessed for the purpose of the study. We have selected list of equipment recommended by national and international organizations like IPAS. All of the hospitals have two rooms for PAC service and only one of the health institutions has functional sink with adequate water supply in the abortion room. However, all of the institutions have adequate lightening supported by Operation Room (OR) light. In three of the hospitals, it was observed that Sphygmomanometer was being brought from other wards in to the PAC room when it was necessary. Thermometer, stethoscope and other necessary gynecological examination instruments (specula including small size, sponge or ovum forceps (tenaculum), and MVA) equipments were available in each hospital. Though there was D&C equipment in each hospital, the utility of this instrument was almost abandoned and no more in use. There were also instrument trays, basins/kidney dishes and operating tables. In most of the sites, it was observed that there was shortage of some drugs such as local anesthesia and misoprostol. Hence, patients were referred to buy the drugs from private clinics but there were Anti-Retroviral Therapy (ART) drugs in most of the PAC rooms.

Information education communication (IEC) materials

There were STI, HIV/AIDS and PAC pamphlets on waiting rooms (on tables, posted on walls) of the two hospitals. Though there were IEC materials on most of the abortion rooms of these health facilities, none of the provider used to elaborate the message on these materials to the client. On top of that penile and female pelvic model was not available in none of the institutions.

Discussion

It is encouraging that the current study finding showed that range for waiting time to get the actual treatment was found to be 1 hour to one full day where as findings in other studies showed that the waiting time to be 1-7 days [15]. However, it is disheartening that finding of this study indicated that client satisfaction on PAC service delivery was lower as compared to previous studies done in the country where the majority (79.6%) expressed their satisfaction with the services they received [14].

Although majority of the patients had no difficulty in getting services in this study, some were delayed due to unavailability of Misoprostol in the health facilities and were required to buy from private clinics. This could interfere the service delivery as the cost of this drug is very expensive when it is brought from drug vendor/ pharmacy and may discourage clients to get safe abortion and post abortion services. Besides, the patients were required to use the painful procedure (MVA) techniques. This painful and irritating procedure may influence client's safe abortion service seeking behaviors.

In service training for providers and introducing appropriate protocols has lion share on improving the quality of services, however, this study found that only 22% of the providers were trained and this could affect quality of the service at all. Although the existing patient-provider interaction seems good to some extent, there are still communication problems like introducing self, counseling, and assuring confidentiality. A study from Nepalon pain management showed that the care providers administered anesthesia, analgesics and antibiotics before, during and/or after procedure [16]. Similar findings were also observed from this study that all of the PAC providers used to administer antipain and antibiotics to most of their patients. In contrary, no PAC provider in this study administered anesthesia. This could be due to unavailability of anesthesia in these set ups.

Variables	Yes		No	
	frequency	Percent	Frequency	Percent
LMP asked	46	67.6	14	32.4
Reproductive history taken	43	71.6	17	28.4
Medical and surgical history taken	2	3.4	58	96.6
Vital sign taken	9	15	51	85
Confirms hemoglobin level	17	28.3	43	71.7
Performs abdominal examination.	6	26.6	44	73.4
Performs bimanual examination	12	20	48	80
Refers client if any complicating factors	10	16.6	50	83.3

Table 4: Observation of post abortion care service performance in governmental Hospitals of Tigray, Ethiopia, 2013

To be effective in providing the basic services in PAC, there is a need to develop basic procedural guidelines, treatment guidelines and distribute appropriate materials for PAC. These include treatment guidelines in the form of poster or pamphlets, continuous provision of Misoprostol and other family planning methods like the injectable, oral pills and IUD material. Besides, Posters containing different messages on STI (sexually transmitted infections), HIV/AIDS, PAC, and family planning should be posted at visible places. Provision of such materials is equally important as other component of care as they contain important lifesaving information [14]. However, data obtained through observation indicated that IEC materials were available only in two of the health facilities despite of their proper use.

It is evident that post abortion clients are with obvious need for family planning regardless of the type of abortion and its complications. Post abortion family planning counseling and provision tends to be lower (48%)in this study as compared to other studies in Guraghe of Ethiopia (56.5%) [11]. However, it is higher as compared to previous studies conducted elsewhere [17]. Women are at risk of pregnancy almost after immediately abortion and hence fertility returns as soon as one week after abortion [18]. However, in this study the PAC providers did not explicitly inform their patients that fertility could return in a very short period of time. Timely family planning services can prevent a subsequent unplanned pregnancy.

Amazingly, none of these care providers assessed and asked the patients for current existing problems, previous surgery and anesthesia. This could be actually due to the reason that these patients are first admitted at the Gynecology OPD and then referred to the abortion room. As a result, there is an assumption that most of the patients could have been assessed or examined at the aforementioned sites. Hence, there could be a gap on taking of history and physical examination, and the service provided. This finding contradicts with a study conducted elsewhere [19] where other reproductive health components and PAC services were provided in the same unit. This discrepancy might be due to the differences in physical space as giving these services at the same place needs additional resources to be expended. The practice of care providers to discuss on preventive measures such as TT vaccine was less in this study. This goes in line with a study conducted in Nepal [16].

Counseling should be associated with referral to other reproductive health units, either in the index facility or other referral centers within the health care providers' network, to insure proper and complete management of PAC. Findings from this study indicated that only 16.6% of the clients were referred and this is extremely low as compared to a study in Nigeria where 56.8% of clients were referred [3]. This figure is alarming to take in to consideration due to the fact that abortion is accompanied by unprotected sex and/or GBV and contraceptive failure makes referral vital component of PAC.

Results of the qualitative studies showed that most of the health facilities have no functional sink with running water. This is similar to the study finding in Guraghe zone of Ethiopia [11]. The study finding indicated that all of the care providers wore sterile gloves, however, only two (11.1%) of them washed hands with water and/soap before gloving and performing the procedure. Meanwhile, most of them except one provider did not wear goggles and protecting boots. This finding goes in agreement with studies conducted in other part of the country [14]. This could be due to negligence and partially due to lack of some facilities like water and functioning sink.

Limitation of the Study

Primarily abortion has social stigmatization and discrimination. Patient interviews may introduce social desirability bias which may cause in under reporting. Secondly, since the study design used was cross sectional it was difficult to establish cause and effect relationships.

Conclusion and Recommendations

This study has identified main concerns that could have great input on the improvement of the PAC. Hence, we can conclude that patient satisfaction is low in addition there is lack of refreshments trainings especially on counseling and reassuring clients. Moreover, there are shortage of materials and supplements. This all could have synergetic effect on compromising the quality of PAC. For this reason it is recommended to skill up the providers with evidence based trainings and to ensure adequate drug supplies.

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References

1. AbouZahr C (2003) Global burden of maternal death and disability. Br Med Bull 67: 1-11.
2. Shearer JC, Walker DG, Vlassoff M (2010) Costs of post-abortion care in low- and middle-income countries. Int J Gynaecol Obstet 108: 165-169.
3. Adinma JI, Ikeako L, Adinma ED, Ezeama CO, Ugboaja JO (2010) Awareness and practice of post abortion care services among health care professionals in southeastern Nigeria. Southeast Asian J Trop Med Public Health 41: 696-704.
4. Gerdts C, Prata N, Gessessew A (2012) An unequal burden: risk factors for severe complications following unsafe abortion in Tigray, Ethiopia. Int J GynaecolObstet 118 Suppl 2: S107-112.
5. Azmat SK, Hameed W, Ishaque M, Mustafa G, et al. (2012) Post-abortion care family planning use in Pakistan. Pak J Public Health 2: 4-9.
6. Wood M, Ottolenghi E, Marin C, Sonneveldt E, Yuen E, et al. (2007) What Works? A policy and Program Guide to the Evidence on Postabortion Care; Postabortion Care Global Resources: A Guide for Program Design, Implementation, and Evaluation.
7. World Health Organization (2005) Reducing Unsafe Abortion. Report of an Intercountry Workshop Bangkok, Thailand.
8. Vlassoff M, Walker D, Shearer J, Newlands D, Singh S (2009) Estimates of health care system costs of unsafe abortion in Africa and Latin America. Int Perspect Sex Reprod Health 35: 114-121.
9. Otsea K, Benson J, Alemayehu T, Pearson E, Healy J (2011) Testing the Safe Abortion Care model in Ethiopia to monitor service availability, use, and quality. Int J Gynaecol Obstet 115: 316-321.
10. Melkamu Y, Betre M, Tesfaye S (2010). Utilization of post-abortion care services in three regional states of Ethiopia. Ethiop J Health Dev 1: 124-129.
11. Tesfaye G, Oljira L (2013) Post abortion care quality status in health facilities of Guraghe zone, Ethiopia. Reprod Health 10: 35.
12. Ipas Ethiopia (2008) Protecting women's health, advancing women's reproductive rights. Chapel Hill, Ipas.
13. Benson J, Alemayehu T, Otsea K, Healy J (2009) Monitoring Safe Abortion Services in Ethiopia: Testing a Model to Improve Service Availability, Use and Quality Prepared for the Conference of theInternational Union for the Scientific Study of Population (IUSSP) Marrakech, Morocco.
14. Kumbi S, Melkamu Y, Yeneneh H (2008) Quality of post-abortion care in public health facilities in Ethiopia. Ethiop J Health Dev22:26-33.
15. Dickson-Tetteh K, Billings DL (2002) Abortion Care Services Provided by Registered Midwives in South Africa. International Family Planning Perspectives 28: 144–150.
16. Barbara R, Susan J, Giri K (2001) An assessment of the Quality of post abortion care services in Nepal: Training and service perspectives. United States Agency for International Development, JHPIEGO Corporation.
17. Abernathy M, Blandón MM, Esóbar A, et al. (1998) Bolivian Workshops increase Health professional's awareness of women's needs after abortion. Bolivia, Latin America and Caribbean.
18. Wilcox AJ1, Dunson D, Baird DD (2000) The timing of the "fertile window" in the menstrual cycle: day specific estimates from a prospective study. BMJ 321: 1259-1262.
19. Huntington D, Piet-Pelon N, (1999) Post abortion care: lessons from operations research. Population Council, One Dag Hammarskjold Plaza New York, NY 10017 USA.