

Original article

A sociological and serological study of at tenders of family planning clinics in Addis Ababa

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Abstract: A study of 542 women attending family planning clinics (FPC) and 1568 women attending obstetric and gynaecologic clinics in Addis Ababa showed utilisation of FPC was highest in those with a family income of 100-500 EB per month (36%), in women who were: Tigrawi (33%) or Amara (31 %), aged 20-34 years (30%), age 16 or older at first marriage/coitus (28%), parity of 2... 2 children (35%), > 5 lifetime husbands/sexual partners (39%), or were bargirls (73%) or prostitutes (43%). FPC attendance was lowest among the nulliparous (2.3%), women from rural areas (10%), the Guragie (10%) and Oromo women (19%), Moslem women 14(%), those of subsistence income (< 10EB per month) (14%). The seroprevalence rates indicative of exposure to STD pathogens were high as was the prevalence of essentially asymptomatic pelvic inflammatory disease (PID). Only 4% of FPC at tenders had no serological evidence of STD: 64% had 3 or more different STD. Specific present or active STD infection prevalence for syphilis (VDRL) 28%, Neisseria gonorrhoea 31 %, genital chlamydia 46% and HSV-2 21% was higher in FPC at tenders than among women attending other clinics. Clinical evidence of PID was also more common in the FPC at tenders (54%), 37% having evidence of salpingitis. Thus FPCs provide a useful setting for screening women particularly at risk. Because of lack of symptoms, these women are unlikely to attend either an STDs clinic or a hospital for routine check up, and as such are not treated and represent a population from which STDs can spread into the population. Measures to screen, treat and educate FPC at tenders, their partners and their clients, are recommended in an attempt to Control STDs and ultimately HIV in the community. [Ethiop. J. Hea/th Dev. 1995;9(1):19-30]

Introduction

Ethiopian women have practised traditional methods of contraception for protection against pregnancy. However, family planning is not generally discussed among women, not even among the young and educated. Many men refuse to allow their wives to use contraceptives either because they wish to have more children, or have misconceptions about birth control. They refuse using condoms for fear of spoiling their sexual enjoyment. The Family Guidance Association of Ethiopia (FGAE) provides clinical and educational services to the community as well as training services in family planning for various categories of health workers. Family planning clinics (FPC) have been provided by hospitals and Maternal and Child Health Clinics (MCHC) run by community nurse/midwives, initially under medical supervision and with regular consultant referral clinics.

The MCHCs are within easy reach of the in community they serve and play a key role in women's health by providing primary health care, antenatal, intrapartum and postnatal care, family planning advice and child welfare/vaccination as well as treatment for minor ailments within the same

compound. Moreover, because of the overcrowding at busy hospitals, many women prefer to attend the MCHCs for gynaecological advice where they can be seen more quickly. A further bonus for women unaccustomed to gynaecological examination is that they are seen by a female health attendant. MCHC, community nurse/midwives with training in family planning became expert at diagnosing common gynaecological problems and treating pelvic inflammatory disease (PID), the most common consequence of sexually transmitted diseases (STDs).

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According to a literature review from 1976- 1992 (2-8) there are no reports of STDs prevalence rates among FPC attenders in Ethiopia and very few in the rest of Africa. These few publications report knowledge of the fertile period (6), degree of sexual activity among adolescents (6, 7), knowledge of contraception (6, 7), AIDS and spread of HIV (8). Despite an increasing volume of literature regarding sexual activity among adolescents (9- 14), knowledge and use of contraception (13- 18), AIDS and spread of HIV (9-12,14-17,19-21), there is serious ignorance about STDs in general (22) and amongst men in particular (23). At the same time there is a dearth of information coming from Africa on prevalence of STDs, the socioeconomic aspects of their transmission, and of their sequelae. Most reports are from old surveys of STD clinic attenders which are not representative of the population, or screening of antenatal clinic attenders (1 Wilson Carswell, personal communication). Cervical cancer (CC), STDs and pelvic sepsis have been major causes of morbidity and mortality among Ethiopian women (24,25).

The aim of this study was (i) to determine the prevalence of selected STDs, PID and CC in women attending FPC and (ii) to draw a socioeconomic profile of FPC attenders in order that services could be targeted more effectively. The data on the women studied are taken from a larger investigation of sociodemographic factors associated with STDs, PID and CC in Addis Ababa. The study was carried out with the permission of the Ministry of Health.

Methods

Two thousand one hundred eleven women were included in this cross-sectional study without preselection: 542 were at tenders at regular FPCs; 1121 were attending gynaecological outpatient departments (GOPD), 342 and 106 attended antenatal (ANC) and postnatal (PNC) clinics, respectively. The selection of two teaching hospitals in Addis Ababa, (the Black Lion and St. Paul's Hospitals) and Lidett, a MCHC for this study was because (i) it was anticipated that the patients seen would be representative of the hospital population of Addis Ababa; (ii) the staff of the obstetric and gynaecologic units are accustomed to collaborating in research projects; (iii) one of the investigators (Dr . Duncan) was a consultant at those centres and thus the investigation could be carried out without disruption of ongoing clinical work and teaching; (iv) by using the teaching hospitals and the Lidetta MCHC, medical students could be exposed to research methodology and concepts during their training. For women attending the FPC, ANC and PNC inclusion criteria were (i) they were the first to be registered that day, thus possibly being kept longer at the MCHC than otherwise would have been the case. For women attending the GOPD of the two hospitals their

selection criteria were that they were first-visit attenders (i) who would not be likely to have received antibiotics recently and (ii) who as first attenders would be more representative of the GOPD clientele, than those returning for repeated investigation and treatment. Verbal informed consent was obtained from all participating women who were informed that a blood sample would be taken from them and a free-of-charge test for syphilis would be carried out and treatment given. No woman refused consent for either the questionnaire, the blood taking or the clinical examination. The VDRL results were taken back to the clinics within 48- 72 hours where standard penicillin (PAM) treatment was prescribed for syphilis if indicated and if other appropriate antibiotic treatment had not already been given. Other gynaecological conditions were also handled similarly.

The number of women in the study was determined by the results of preliminary studies regarding (i) the prevalence of N. gonorrhoea, trichomoniasis and the clinical evidence of PID in 100 GOPD attenders; (ii) the prevalence of N.gonorrhoea in 200 parturient women; (iii) the aetiology and treatment of 134 women with pelvic and puerperal sepsis, and pelvic abscess; all these studies had been carried out in St Paul's Hospital. A minimum of 200 patients was considered to be a suitable number to allow for meaningful statistical analysis of the results.

The breakdown of the study group into approximately 50% symptomatic GOPD attenders and 50% asymptomatic attenders divided into half each of FPC and obstetric patients was selected for the same reason. The collection of data, cytology slides and sera, and the VDRL test was made during an eight month period in 1975 and 1976 while ethnic and socioeconomic factors could be assessed independently of population migration that occurred during the revolution. Analysis was done abroad but the data and specimens could not, however, be despatched from the country until 1977 and 1978. Further serologic testing using micro-methods in five European laboratories was carried out from 1983-1990 as appropriate tests and funding became available. Personal details were obtained by means of a questionnaire completed, in private, initially by two senior Ethiopian nurse midwives

Table 1: Socio-economic factors of women using family planning clinics in Addis Ababa

n FPC/n of women studied*	(%)	P-value
Ethnic group		
Amahara	373/1223	31
Oromo	61/317	19
Guragie	32/318	10
Tigrari	58/176	33

Other**	18/72	25	<0.001
Religion			
Orthodox	494/1856	27	
Moslem	29/208	14	<0.001
Origin			
Urban	494/1718	29	
Rural	36/352	10	<0.001
Manthly income Ethiopian Birr (EB)***			
1-10	51/367	14	
10-50	213/667	32	
50-100	60/118	32	
100-500	114/317	36	
>500	25/79	32	<0.001
Age			
<20	31/181	17	
20-34	428/1421	30	
35-49	79/443	18	
>50	0/53		<0.001

Parity			
0	9/392	2	
1	67/392	17	
2	106/353	30	
3-5	238/636	37	
6-10	114/304	38	
>10	8/25	32	<0.001

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Table 1 continued

Age at first marriage			
<13	106/462	23	
13-15	211/839	25	
16-18	143/507	28	
>18	53/199	27	0.09
Number of husbands/sexual partners			
1	242/910	27	
2-5	143/720	20	
>5	119/304	39	

Unknown	32/146	22	<0.001
Marital status/profession			
Single	4/20	20	
Married	286/1244	23	
Divorced	89/345	26	
Widowed	11/46	24	
Maid	37/160	23	
Talla Seller	35/132	27	
Prostitute	45/105	43	
Bargirl	30/41	73	<0.001

*n = number because the data were not recorded for some variables, the number analysed does not add up to the total number of women in the study.

**Fifty percent (36/72) WERE Moslem

*** Many of the women did not know that their husbands income was, they only handled the Ahousekeeping money. #

Cochrance-Mantel-Haenzel no-zero correlation

(Sisters) who worked with Dr. Duncan throughout the study, and then by an Ethiopian female assistant with secretarial training who was trained in the art of questionnaire completion by Dr. Duncan and the Ethiopian Sisters who also checked the findings prior to the clinical examination. The language used was Amharic with, for those women who did not speak Amharic, either interpretation from other languages, or the questionnaire was completed by a senior clinic or hospital nurse (usually a sister) who spoke Orominga or Tigringa as a first language. Data included were: present age, ethnic group, religion, residence, family monthly income, marital status/profession (single, married, widow, divorcee, housemaid, talla seller, prostitute, bargirl), number of lifetime husbands/sexual partners, number of years married, duration of sexual life (years), total number of pregnancies, parity (number of viable children born), age at menarche, age at first marriage, age at first coitus, and relation of first coitus to the menarche, self-history of STDs (syphilis or gonorrhoea) and whether treated or not, use of contraceptives and type, and present complaint or reason for attending the hospital/clinic.

Clinical data were obtained by Dr. DunCall, who also made the cytological smears and collected the blood samples, assisted by Dr. Wilson. The procedure for collection of clinical data was standardised and recorded on specially prepared sheets. Gynaecological examination: Full abdominal and gynaecological examination was carried out using a good light source (daylight or angle poise lamp). Particular attention was paid to the state of the cervix and for evidence of upper and lower genital tract infection involving the urethra (U), salpinges (S) and Bartholin glands (B) which were inspected (U,B) and palpated (U,S,B) (26).

Cervical cytology: A cervical cytological smear preparation was made. The slides were sent to Liege, were stained using the Papanicolaou stain and examined by light microscopy by Dr Pelzer for evidence of

Table 2: Symptoms of women attending family planning and other womens= clinics in Addis Ababa

Symptom	Attenders at FPC	Attenders at other clinics
Total number of women seen	542	1569
pain		
Abdominal pain	18	297
Pelvic pain	11	265
Backache	2	84
Dysmenorrhoea	2	32
Other gynaecologic Pain	0	15
Menstrual problem/abnormal bleeding		
Amenorrhoea	3	219
continuous bleeding	5	130
Irregular menses	5	97
Menorrhagia	9	76
AAbortion≅	2	23
Other	0	71

Vaginal discharge		
Excessive discharge	16	209
Urinary		
Dysuria	2	76
Frequency	1	8
Other	0	35

n = number

FPC = Family Planning Clinic

cancer cells, excessive numbers of polymorphonuclear (PMN) cells (evidence of cervical infection), and for presence of trichomonas and monilial hyphae (evidence of heavy vaginal infection involving the cervix). Serological tests: Ten ml of whole blood was obtained by the clinic doctor from each woman using disposable needles and vacutainer tubes prelabelled with name and study number . The serum was prepared the same day and stored at -20°C. Serological tests for syphilis were carried out on all sera using VDRL. The sera were then frozen and stored at -20°C. Sera were transported frozen to the United Kingdom and kept at -20°C until further testing could be carried out: in Edinburgh for syphilis using TPHA (27) and hepatitis B virus (HBV) (28); in London for herpes simplex virusL (HSV2) (29) and Chlamydia trachomatis D-K (CTD-K) and Lymphogranuloma venereum 1-3 (LGV) (30); in Copenhagen for N.gonorrhoea (gonococcal antibody test (GAT) (31); and in Antwerp for Haemophilus ducreyi (32,33). il .Statistical analysis was made using the Chi- square and CochranMantel-Haenzel Geneaal Association Siatistic (34) .

Results

There were 2111 women enrolled for the study of whom 542(25.7%) attended FPC clinics:

Utilisation of FPC and contraceptives was highest among women who were Tigrawi (33%), Amara (31%), Ethiopian Orthodox (27%), urban dwellers (29%), had a family income of 100-500 EB per month (36%), were aged 20-34 years (30%), had two or more children (35%), were age 16 or older at first marriage (28%), had more than five lifetime husbands/sexual partners (39%), and were by profession (bargirls 73% , prostitutes 43%) (Table 1). Regarding the last factor, it should be noted that the categories of last marital status/profession were mutuallyexclusive: eg. a divorcee who became a prostitute was recorded as the latter .

FPC utilisation was lowest among women who were nulliparous (2.3%), came from rural areas (10%), were Guragie (10%) or Oromo (19%), or Moslem (14%) and those of subsistence income (< 10 EB per month) (14%).

Most common complaints among clinic attenders were abdominal or pelvic pain, menstrual disorder, vaginal discharge and urinary symptoms. Women attending FPC had few symptoms compared with those attending other clinics such as GOPD, ANC, PNC (Table 2).

The prevalence rates for serological evidence of exposure to all six STDs were higher in that FP A group compared with women attending other clinics, but only statistically significantly increased for gonorrhoea, and high titre genital chlamydiae (Table 3). Only 4% of FPC attenders had no serological evidence of STD (Table 4) and 64 % had serologic evidence for three or more different STDs. Clinical evidence of PID, past or present, was more common among the FPC at tenders chiefly because they had more salpingitis. In contrast, cervical cancer, dysplasia, cervical infection and trichomoniasis (the latter two being diagnosed cytologically) -were:- all significantly less common among FPC attenders. Only eight women {1.5%} attending FPC were found to be pregnant on clinical examination: whether these women were pregnant as a consequence of failed contraception/forgetting to take the combined pill, or came in hopes of having an IUCD inserted {as an abortifacient}, we could speculate.

More FPC attenders required treatment for salpingitis and urethritis than non-FPC attenders. Cervical ectropion (erosion) was more common among FPC attenders {Table 5}.

Discussion

The analysis of social and economic factors associated with acceptance of family planning and contraception is complex.

The higher utilisation of FPC among Tigrawi and Amara women was associated with higher income and, possibly, with education. Family monthly income may be an unreliable measure, but should be included in any further study of FPC attenders. The impression was that there were more Tigrai women amongst the professional group (nurses, teachers, secretaries) who also were in the higher income group and, by virtue of their job, better educated, and thus better motivated to achieve a smaller family size. Thus the reason for the association of FPC utilisation with income may have been ethnic and economic rather than religious. Indeed, there was a twofold difference of FPC attendance between the Orthodox and Moslem women.

But from cross variable analysis {details not shown} there were proportionately more Orthodox Christian women than Moslems in the higher income bracket {100-500 EB per month}. Furthermore, significantly fewer attenders at FPC belonged to the poorest (< 10 EB per month) group. The economic aspect is enigmatic as the service was entirely free at MCHC clinics and at one of the teaching hospitals. There must be other reasons such as education, tradition, or possibly better survival of children, which promotes family planning acceptance among upper income women.

Table 3: Prevalence of sexually transmitted diseases among women attending family planning and other clinics in Addis Ababa.

Diagnosis		Number tested	Number Positive	%	OR	95% CI (P-value)
Syphilis	FPC	475	180	39	1.19	0.96-1.48
	Other	1362	470	35		(NS)
(TPHA)	FPC	496	137	28	1.08	0.86-1.35
	Other	1459	382	26		(NS)
Gonorrhoea	FPC	481	312	66	1.53	1.24-1.91
	Other	1370	770	56		(<0.001)
*GAT titre $\geq 1/320$	FPC	481	147	31	1.83	1.44-2.31
	Other	1370	266	19		(<0.001)
C. trachomatis (D.K. & LGV1-3)	FPC	481	307	64	1.14	0.92-1.41
	Other	1365	830	61		(NS)
*Titre $\geq 1/64$	FPC	481	220	46	1.26	1.02-1.55
	Other	1365	547	40		(0.03)
Hepatitis B virus	FPC	486	192	40	1.08	0.88-1.34
	Other	1373	517	38		(NS)
HSV-2	FPC	481	196	41	1.15	0.93-1.42
	Other	1365	512	38		(NS)

*HVS-2 titre $\geq 1/128$	FPC	481	101	21	0.04	0.81-1.35
	Other	1365	277	20		(NS)
H. ducreyi	FPC	476	97	20	1.09	0.84-1.41
	Other	1355	258	19		(NS)
Cervical cytological diagnosis infection	FPC	514	178	35	0.08	0.65-0.99
	Other	1442	575	40		(<0.04)**

Table 3 continued

Diagnosis		Number tested	Number Positive	%	OR	95% CI (P-value)
Trichomoniasis	FPC	514	48	9	0.42	0.31-0.58
	Other	1442	284	20		(<0.001)**
PID(Bus)	FPC	535	290	54	1.22	1.00-1.49
	Other	1557	765	49		(0.04)
Bartholinitis	FPC	535	41	8	0.85	0.59-1.22
	Other	1557	139	9		(NS)
Urethritis	FPC	535	189	35	1.12	0.91-1.38
	Other	1557	510	33		(NS)
Salpingitis	FPC	535	196	37	1.38	1.13-1.70
	Other	1557	459	29		(0.003)
Pregnant	FPC	542	8	1.5	0.03	(<0.001)**

Cervical cancer (all diagnoses)	FPC	542	2	0.4	0.18	0.05-0.66
	Other	1569	31	2		(0.001)**
Cervical cytological diagnosis cancer	FPC	513	2	0.4	0.25	0.06-1.07
	Other	1433	22	1.5		(0.04)**
Dysplasia	FPC	513	1	0.2	0.31	0.03-2.45
	Other	1433	9	0.6		(NS)

n = number

OR = Odds ration

FPC = Family planning clinic attenders

NS = non significant

Other = Women attending other clinics(gynaecological or obstetric) TPHA = Treponema pallidum haemagglutination assay

GAT = Gonococcal antibody test

HSV-2 = Herpes simplex virus 2

* = High titre indicates present or active infection

** = Negative statistical correlation with family planning attenders compared with the attenders at other clinics

The greatest demand for FPC services was from women with more than 5 lifetime husbands or sexual partners, the majority of whom were employed as commercial sex workers. For social reasons the demand for FPC services was lower for women having 2-5 lifetime sexual partners/husbands but not involved in prostitution. Possibly of significance is the observation from analysis of the infertility data that the complaint of infertility was highest in those with two or three lifetime sexual partners or husbands.

In this study, the main differences among a prostitute, bargirl or talla seller were age, age at first marriage and duration of marriage. As reported by the women, 95% of each group had a monthly family income of <50 EB. The classification of women involved in prostitution into these three groups was based on how the women initially described themselves. On detailed cross variable analysis it was found that the three classifications did in fact fall into separate groups. Bargirls were the youngest, had been married for the shonest time (presumably employed to serve as waitresses in bars for the physical needs of their customers) and were paid a monthly wage irrespective of their work load. The professional prostitutes (setinga adari) were self-employed and put a red coloured light in the window's of their houses. The youngest often stand (to solicit) in front of their doorways or in the streets, while the older women sit at home and wait for their clients. Talla sellers worked from home, many sitting outside their houses selling tall a to passersby. These women, frequently widows or divorcees, are among the oldest and poorest involved in prostitution. Not all talla sellers were involved in prostitution; 5% of those we studied reported having become talla sellers without explicitly stating that they were separated from their husbands. Professional prostitutes and tall a sellers were first married very young. In general, prostitutes and bargirls maintained their jobs and livelihood, by virtue of not becoming pregnant. Both groups had higher income than talla sellers who, on the other hand, were frequently widowed or divorced, and would not lose their jobs should they become pregnant.

Detailed analysis shows increased usage of FPC according to age at first marriage. Attendance was lowest (20%) amongst those married before the age of 10 years, and highest (38%) among those married after the age of 25 years. Age at first marriage/coitus (0.0001) associated with age at first coitus: those with sexual debut at age 13-18 had the largest number of children. Those married youngest also had the lowest family income (whether as cause or effect cannot be determined by our data), and age at first marriage/coitus increased with higher family income and, as stated above, possibly with education.

The effect of these factors on FP acceptance is thus related to the following: (i) very young age at first coitus leads to increased risk of STD especially gonorrhoea and genital chlamydial infection (35,36) with resultant PID and infertility; such infertile women would not require FP advice/contraception, but would attend FPC for infertility advice; (ii) age of sexual debut at 13-18 is associated with higher parity and could prompt a demand for FP advice; (iii) older age at first marriage is associated with higher income, better education, decrease in infant and perinatal mortality, and hence, lower parity, and is likely to lead to more FP acceptance, as has been shown elsewhere (37).

Women attending the FPC had remarkably few symptoms/complaints compared with other clinic attenders, although they had more clinical evidence of past/present PID, and more active infection requiring immediate treatment. They also had more serological evidence of exposure to STDs, and higher titres which were indicative of active/present infection. Less than 3% complained of vaginal discharge although 9% had *T. vaginalis* in their cervical cytology smear which would

Table 4: Seroprevalence of STDs among Family planning clinic attenders and other women attending obstetric and gynaecologic clinics in Addis Ababa

Prevalence	FPC attenders		Other clinic attenders	
	No	%	No	%
Negative	23	(4)	101	(6.5)
Positive (All STD)				
1 STD	62	(12)	200	(13)
2 STDs	107	(20)	314	(20)
3 STDs	113	(21)	316	(20)

4 STDs	104	(19)	289	18.5)
5 STDs	67	(12)	125	(8)
6 STDs	6	(12)	224	(14)
Total	542		1567	

reflect a very severe infection involving cervix. .

The increased STDs and subsequent PW may be explained by oral contraception or the use of IUCD. Some of the combined pills (oral contraceptives) cause cervical ectropion, as was observed in our study, with the transformation zone and the endocervical epithelium being exposed to bacterial and viral agents. Oral contraceptives are per se a factor increasing transmission/acquisition of STD. Detailed analysis of pm prevalence and type of contraceptive showed 4% increase in pm in women using the contraceptive pill, and 12% increase in pm in those using an IUCD, the latter despite our deliberate policy not to insert the IUCD in women with clinical evidence of old/earlier pm, and women engaged in prostitution. Studies elsewhere have shown that women are quick to blame ill health or symptoms of STDs and pm on a contraceptive. Thus certain effective methods of contraception have fallen into disrepute and even led to the failure of FP programmes (3).

The tables show an apparent discrepancy in the number of serological tests for specific STDs. The first 100 women had their VDRL test carried out in St Paul's Hospital. The laboratory was unwilling to continue the routine free testing of the study patients (especially as some women would normally have been able to pay for the test), nor to store the sera. Thus from patient study number 101 onwards the VDRL testing and storage of sera was done by NAMRU-5. For consistency, the VDRL results of the first 100 patients were discounted, although the patient's socioeconomic, clinical and cytological data were used in the analysis of serum. Thus the earlier tests VDRL were carried out on 1955 sera, and the latest (for antibody to H.ducreyi) on 1831 sera.

The seroprevalence rates for exposure to STD pathogen among Ethiopian FPC attendees is high. In particular there were 31% with GAT titres $\geq 1/3209$, 45% with antibody to present active or recent gonococcal, genital chlamydial or herpetic infections, respectively. These prevalence rates are higher than the few published, available data from FPC elsewhere in Africa: gonorrhoea 3% in Zaire (2) and 5% in Ibadan (38) Nigeria, 10% in South Africa (3), and 17.5% in Kenya (39); genital chlamydiae 16%, culture positive in South Africa (5), and 35% seropositive in Nigeria (40); or syphilis (TPHA) 18% in Nigeria (2). Swaziland had 15% trichomoniasis among FPC attendees (4). We could not find published records of FPC prevalence rates for either genital herpes or chancroid in Africa. It could be argued that the data from this study are rather old and hence irrelevant to Ethiopia in the mid 1990s. This study however is useful as a seroepidemiological baseline and should prompt another

study as a matter of urgency particularly as there are indications that teenage sexual activity, previously virtually unknown, and STD prevalence are both on the increase (14).

Significance of marital status/profession: A contributing factor to the high STD prevalence rate among FPC attenders reported in this study may have been the proportion of 1 women in prostitution attending the FPC (20%) which is two times higher than the number of women in prostitution attending the other clinics (11%). Detailed analysis of the association of the classical STDs (syphilis and gonorrhoea) with marital status/profession has shown the lowest prevalence to be among those still with their first husband/sexual partner. Women who were married to their, second or subsequent husbands, widows, divorcees or maids formed an intermediate group between those with a stable first marriage and those involved in prostitution. Among the commercial sex workers, prevalence rates for classical STDs increased from being lowest among talla sellers to highest among bargirls (4-2). However detailed analysis of these three groups (i) women with

stable first marriage, (ii) women in prostitution, and (iii) all other women (single, widowed, divorced, maids, married to second or subsequent husband) showed that there was no difference in the proportion of group (i)

women attending FPC or other clinics, and there were rather fewer (45%) compared with 55% of the group (ii) women attending FPC. Hence, it is unlikely that this group was responsible for the increase in STDs amongst FPC attenders. We have combined marital status and profession, as according to the information the women gave us, the two were mutually exclusive. "I was divorced, now I am a prostitute", "I was married now I am a bargirl!", "My husband died now I am a talla Seller". To exclude those who are now in prostitution from the analysis would be to exclude 14% of the women.

As most gonococcal and genital chlamydial infections in women are silent (26,36) women with these infections form a reservoir of infection, infecting and being infected by promiscuous men who transfer the infection to others (43,44), whether the transfer be from women in prostitution to the wife or vice versa. Thus as women across the social and marital spectrum attend FPC, a new responsibility for family planning services is the detection, treatment and prevention of reproductive tract infections (44), although as Hopcraft et al observed, "In family planning

Table 5: Gynaecological conditions requiring immediate treatment in family planning and other women's clinics in Addis Ababa

Table 5: Gynaecological conditions requiring immediate treatment in family planning and other women's clinics in Addis Ababa

Condition	Attenders at FPC			Attenders at other clinics		
		Total			Total	%
Number of women seen Pelvic inflammatory disease		542			1569	
PID/Parametritis	20			106		

*Pelvic Abscess	0			10		
*Peritonitis	0			8		
Total		20	4%		124	8%
Salpingitis	141			222		
Acute/chronic	0			17		
*Pyosalpinx		141	26%		239	15%
Total						
Urinary tract infection						
Upper AUTI≅	1			12		
Urethritis	101			26		
Total		102	19%		38	2%
Cervicitis	12	12	12%	32	32	2%
Noted but not treated cervical ectropion (Cervical erosion)	32	32	6%	32	32	2%

n = number

FPC = family planning clinic

* required emergency admission

programmes in most developing countries the question of diagnosing and treating STDs appears to be almost completely ignored, probably because of fear of calling attention to a possible association between contraception and promiscuity, and partly because of implications for extension of staff training and clinic services" (39). Indeed at the time of this study, the MCHC's were designed to run at low cost and thus only did basic investigations. Bacteriological and cervical cytology examinations were done in referral hospitals, and then were only available to the very few who could afford to pay for these tests.

However as we have shown elsewhere there is increased Pill among those who have been infected by *N. gonorrhoeae* or genital chlamydiae (26,36). The diagnosis of Pill by detecting palpably thickened bartholin glands, urethra or salpinges (26) can be made easily by trained community nurse/midwives. Subsequent treatment with a two week course of tetracyclines should clear both infections as well as treating co-existent syphilis. FPCs, especially those in MCHCs which have a good rapport with the surrounding community, are then in a strong position to carry out discrete tracing and treatment of contacts of infected women. Ideally interim microbiological surveys of FPC at tenders at clinics in different locations would monitor the STDs prevalence and the

effectiveness of intervention strategy. These tests are expensive and can only be carried out in specialised centres. The advent of serological tests by micromethods while not always diagnostic, none-the-less are a valuable sero-epidemiological tool, and used along with clinical and sociological data in the more readily available statistical programs are valuable in detecting populations at risk.

In conclusion, a high seroprevalence of STDs and PID among FPC attenders is reported. The FPC provides a useful setting for screening and treating women particularly at risk, who for lack of symptoms, will not attend either an STD clinic nor a hospital for routine investigation. These untreated women represent a population from which STDs are introduced in the community. We recommend that FPCs should adequately screen, treat and educate FPC attenders, their partners, and their clients, in an attempt to control STDs in the community. It is imperative to treat the male sexual partner(s) concurrently to avoid reinfections. This is particularly important because of the risk of HIV spreading rapidly through the community (46), which can be anticipated as it has been observed that gonorrhoea, a marker of sexual activity (47), is highly prevalent among the FPC attenders studied. Moreover, STDs, especially those causing genital ulceration, facilitate the transmission of HIV. Further surveys should be implemented to monitor STDs prevalence and the effectiveness of intervention programs.

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References

1. Madebo T. A six month prospective study on different aspects of abortion. *Ethio. Med. J.* 1993;31:165-172.
2. Nsofor BI, Bello CSS and Ekwempu CC. Sexually transmitted disease among women attending a family planning clinic in Zaria, Nigeria. *J Gynecol Obstet*, 1989;28:365-367.
3. Hall SM and Whitcomb MA. Screening for gonorrhoea in family planning acceptors in a developing country. *Publ Hlth Lond*, 1978;92:121-124.
4. Meheus A, Friedman F, Van Dyck E, and Guyver T. Genital infections in prenatal and family planning attendants in Swaziland. *E Afr Med J.* 1980;47:212-217.
5. Ballard RC, Fehler HG and Piot P. Chlamydial infections of the eye and genital tract in developing countries, in *Chlamydial infections* (eds D Oriel, G Ridgway, I Schachter, D Taylor-Robinson and M Word), 1986 pp 479-486.
6. Rosenbert MI, Schulz KF and Burton N. Sexually transmitted diseases in sub-Saharan Africa. A priority list based on Family Health International's Meeting. *Lancet*, 1986;ii:152-153.

7. Boohene E, Tsodzai I, Hardee-Cleaveland K, Weir S and Ianowitz B. Fertility and contraceptive use among young adults in Harare, Zimbabwe. *Studies in Family Planning*, 1991;22:264-71.
8. Govender V, Bhana R, Pillay A, Panchia R, Padayachee GN and de Beer M. Perceptions and knowledge about AIDS among family planning clinic attendees in Johannesburg. *S Afr Med J*, 1992;81:71-74.
9. Abdool Karim Q, Abdool Karim SS and Nkomokazi I. Sexual behaviour and knowledge of AIDS among urban black mothers. *S Afr Med J* 1991;80:340-343.
10. Odujinrin OM and Akinkuade FO. Adolescents AIDS knowledge, attitude and beliefs about preventive practices in Nigeria. *European J Epidemiol*, 1991;7:127-133.
11. Friedlan RH, Iankelowitz Sk, De Beer M, de Klerk C, Khoury V, Csizmadia T, Padayachee GN and Levy S. Perceptions and knowledge about the acquired immunodeficiency syndrome among students in university residences. *S Afr Med J*, 1991;79:149-154.
12. Mafany NM, Mati IK and Nasah BT . Knowledge of and attitudes towards sexually transmitted diseases among secondary school students in Fako District Cameroon. *E Afr Med J*, 1990;67:706711.
13. Nichols D, Woods ET, Gates DS and Sherman I. Sexual behavior, contraceptive practice, and reproductive health among Liberian adolescents. *Studies in Family Planning*, 1987;18:169-176.
14. Mathews C, Kuhn L, Metcalf CA, Ioubert G and Cameron NA, Knowledge, attitudes and beliefs about AIDS in township school students in Cape Town. *S Afr Med J*, 1990;78:511-516.
15. Wilkins HA, Alonso P, Baldeh S, Cham MK, Corrah T, Hughes A, Iateh KO, Oelman B and Pickering H. Knowledge of AIDS, use of condoms and results of counselling subjects with asymptomatic infection in The Gambia. *AIDS Care* 1989;1:247-256.
16. Bertrand IT, Makani B, Hassig Se, Niwembo KL, Djungu B, Muanda M and Chirhamolekwa C. AIDS-related knowledge, sexual behavior, and condom use among men and women in Kinshasa, Zaire. *Am J Publ Hlth*, 1991;81:53-58.
17. Wilson D, Sibanda B, Mboyi L, Msimanga S and Dube G. A pilot study for an HIV prevention programme among commercial sex workers in Bulawayo, Zimbabwe. *Soc Sci Med*, 1990;31:609- 618.
18. Mbizvo MT and Adamchak DI. Condom use and acceptance: a survey of male Zimbabweans. *Centr Afr J Med*, 1989;35:519-523.
19. Foster SI and Furley KE. 1988 public awareness survey on AIDS and condoms in Uganda. *AIDS*, 1989;3:147-154.
20. Neequaye AR, Neequaye IE and Biggar RJ . Factors that could influence the spread of AIDS in Ghana, West Africa: knowledge of AIDS, sexual behavior, Prostitution, and traditional medical practices. *J Acquired Immune Deficiency Syndromes*, 1991;4:914-919.
21. Adamchak DI, Mbizvo MT and Tawanda M. Male knowledge of and attitudes and practices towards AIDS in Zimbabwe. *AIDS*, 1990;4:245- 250.
22. Herbst MC. AIDS: a right to be informed. *Med Law*, 1991;10:83-93.
23. Wassef HH, Fox E, Abbatte EA, Toledo IF and Rodier G. Knowledge of sexually transmitted diseases and attitudes towards them in population at risk in Djibouti. *Bull World Hlth Org*, 1989;67:549- 553.
24. Perine PL, Duncan ME, Krause DW, Awoke S and Zaidi AA Pelvic inflammatory disease and puerperal sepsis in Ethiopia. I Etiology. *Am J Obstet Gynecol*, 1980;138:1059-63.
25. Duncan ME, Perine PL, Krause DW, Awoke S and Zaidi AA Pelvic inflammatory disease and puerperal sepsis in Ethiopia. II Treatment. *Am J Obstet Gynecol*, 1980;138:1059-63.

26. Duncan ME, Reimann K, Tibaux G, Pelzer A, Mehari L and Lind I. Seroepidemiological study of gonorrhoea in Ethiopian women. 1. Prevalence and clinical significance. *Genitourin Med*, 1991 ;67 :485- 92.
27. Young H, Henrichsen C and Robertson DHH. Treponema pallidum haemagglutination test as a 3 screening procedure for the diagnosis of syphilis. *Br A I Vener Dis*, 1974;50:341-46.
28. Peutherer IF, Mackay P, Ross R, Stahl S and E Murray K. Use of hepatitis B antigen produced in 4 Escherichia coli in an assay for anti-HBc. *Med lab j Sci*, 1981;38:355-58.
29. Forsey T and Darougar S. Indirect Micro- fluorescence test for detecting type-specific antibodies to herpes simplex virus. *I Clill Pathol*, 1980;33: 171-76.
30. Trehame ID, Darougar S and Iones BR. Modification of the micro-immuno fluorescence test to provide a routine sero diagnostic test for chlamydial infection. *I Clill Pathol*, 1977;30:510-7.
31. Reimann K, Odum L, Larsell SO and Lind I. Indirect Haemagglutination test using gonococcal pilus antigen: how useful to diagnose gonorrhoea? *Genitourin Med*, 1987;63:250-55.
32. Museyi K, Van Dyck E, Vervoort T, Taylor D, Hoge C and Piot P. Use of an enzyme immunoassay to detect serum IgG antibodies to Haemophilus ducreyi. *I. Infect Dis*, 1988;157(5):1039-1043.
33. Roggell E., Hoofd G., Van Dyck E., Piot P. Enzyme immunoassays (BIAS) for the detection of anti-H ducreyi serum IgA, IgM antibodies. *Sex Transm Dis*, 1994;21:36-42.
34. Mantel N. Chi-square test with one degree of freedom: extensions of the Mantel Haenzel procedure. *I Am stat Assoc*, 1963;58:690-700. 35. Duncan ME., Reimann K, Tibaux G, Pelzer A, Mehari L and Lind I. Seroepidemiological study of gonorrhoea in Ethiopian women. 2. Socioeconomic picture. *Genitourin Med*, 1991;67:493-7.
36. Duncan ME, Iamil Y, Tibaux G, Pelzer A, Mehari L and Darougar S. Seroepidemiological and sociological studies of genital chlamydial infection in Ethiopia women. *Genitourin Med*, 1992;68:221- 227.
37. Morley D., Lovel H. My name is to-day. MacMillan, London, 1986;46-57.
38. Onifade A and Osoba AO. Venereal disease among Nigerian women attending intra-uterine contraceptive device clinics. *I. trop Med Hyg*, 1972;75:213-216.
39. Hopcraft M. Verhagen AR, Ngigi S and Haga ACA. Genital infections in developing countries: experience in a family planning clinic. *Bull Wld Hlth Org*, 1973;48:581-586.
40. Darougar S. Forsey T, Osoba AO. Dines RJ , Adelusi B and Coker Go. Chlamydial genital infection in Ibadan, Nigeria. *Br J Venereal Dis*, 1982;58:366-9.
41. Feleke Wand Kloos H. Sexually transmitted diseases. In *The Ecology of Health and Disease in Ethiopia*. (eds H Kloos and Zein Ahmed Zein), Chapter 1993;Chapter 22. pp 296-306. Westview Press, Boulder, San Francisco. Oxford.
42. Duncan ME, Roggen E, Tibaux G, Pelzer A. Mehari L and Piot P. Seroepidemiological studies of Haemophilus ducreyi infection in Ethiopian women. *Sex Transm Dis*. 1994;21(5):280-288.
43. Verhagen AR and Gemert W. Social and epidemiological determinants of gonorrhoea in an East african country. *Br J Vener Dis*. 1972;48:277- 286.
44. Willcox RR. Importance of "feedback" in gonorrhoea control. *Br J Vener Dis*. 1965;41 :287-91.
45. Meheus A. Women's health: importance of reproductive tract infections, pelvic inflammatory disease and cervical cancer, in (eds A Germain et al). 1992;61-91. Plenum Press. New York.
46. Khodakevich L and Zewidie D. AIDS. in *The Ecology of Health and Disease in Ethiopia*. (eds H Kloos and Zein Ahmed Zein), 1993;Chapter 22, pp 319-337. Westview press. Boulder, san Francisco. Oxford.

47. Clay JC, Manuel ARG and Veeravahu M. Is gonorrhoea a good index of changed heterosexual behavior? *Genitourin Med*, 1988;64:135.