



## STDs IN WOMEN ATTENDING FAMILY PLANNING CLINICS: A CASE STUDY IN ADDIS ABABA

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**Abstract**—For cultural reasons modern contraception has been slow to gain acceptance in Ethiopia. Knowledge about contraception and abortion is still limited in many family and community settings in which it is socially disapproved. By 1990 only 4% of Ethiopian females aged 15–49 used contraception. Little is known of sexually transmitted disease (STD) prevalence in family planning (FP) attenders in Africa in general and Ethiopia in particular, even though attenders of family planning clinics (FPCs) are appropriate target groups for epidemiological studies and control programmes. A study of 2111 women of whom 542 (25.7%) attended FPCs in Addis Ababa showed utilisation rates to be highest in women who were: Tigre (33%) or Amhara (31%), aged 20–34 years (30%), age 16 or older at first marriage/coitus (28%:38% in those first married after 25 years); who had a monthly family income of 10 Ethiopian Birr (EB) or more (33%:36% for those with income 100–500 EB), three or more children (37%), more than five lifetime husbands/sexual partners (39%); or were bargirls (73%) or prostitutes (43%). The seroprevalence rates for all STDs, higher in FPC attenders compared with other women, were syphilis (TPHA) 39%, *Neisseria gonorrhoeae* 66%, genital chlamydia 64%, HSV-2 41%, HBV 40% and *Haemophilus ducreyi* 20%. Only 4% of FPC attenders had no serological evidence of STD: 64% were seropositive for 3 or more different STD. Clinical evidence of pelvic inflammatory disease (PID) was also more common in the FPC attenders (54%), 37% having evidence of salpingitis. The FPC provides a favourable setting for screening women likely to have high seroprevalence of STD, who for lack of symptoms will not attend either an STD clinic nor a hospital for routine check up. We recommend that measures be taken to adequately screen, treat and educate FPC attenders, their partners, and as appropriate and when possible their clients, in an attempt to control STDs and ultimately HIV in the community. Social, economic and cultural factors in the occurrence of STDs, prostitution, family planning and modern contraception coverage in Ethiopia are identified and deficiencies of current programmes briefly discussed with the objective of targeting services more effectively. Copyright © 1997 Elsevier Science Ltd

**Key words**—family planning, contraception, sexually transmitted disease (STD), pelvic inflammatory disease (PID), Africa (Ethiopia)

### INTRODUCTION

There is a dearth of information coming from Africa on prevalence of sexually transmitted diseases (STDs), the social context of their transmission, and of their sequelae. Little is known of STD prevalence in FP attenders in Africa in general and Ethiopia in particular. In commenting on this lack, Hopcraft *et al.* observed “In family planning in most developing countries the question of diagnosing and treating STD appears to be almost com-

pletely 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” [1]. A literature review from 1976 to 1992 reveals very few reports of STD and family planning in Africa [2–8] with none from Ethiopia. Some of these reports are devoted essentially to knowledge of the fertile period [6], degree of sexual activity amongst adolescents [6, 7], knowledge of contraception [6, 7], AIDS and spread of HIV. At the same time there is an increasing volume of literature unrelated to FPC attenders regarding sexual

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activity in adolescents [9–14], knowledge and use of contraception [13–18], AIDS and spread of HIV [9–12, 14–17, 19–23]. The serious ignorance about STDs is not just in the literature and in general [24], but in those at risk among men [25], and prostitutes in particular, despite the plethora of studies on commercial sex workers [26].

STD has not only been the Cinderella of tropical medicine [27], but more especially a neglected aspect of women's health. A review of publications on the subject of STD in tropical medicine shows that of papers reviewed in the *Tropical Disease Bulletin* (1991) less than 1% related to STD, while 2% related to the epidemiology of HIV and AIDS. To put STDs in perspective, the global incidence is estimated by the World Health Organization (WHO) to be in excess of 125 million per annum, most of which occur in developing countries, particularly in Africa. This figure may however be an underestimate if one considers notifications and lack of notifications for one country alone. For example, in Ethiopia gonorrhoea notification to the Ministry of Health for the year 1989/90 was 90,000 cases. However, based on epidemiological studies [28, 29], the population and population growth rate, it can be estimated that 140,000 pregnant women annually may have asymptomatic gonorrhoea and 42,000 prostitutes in Addis Ababa alone have gonorrhoea, a total of 182,000 women in two selected groups, before including infected men, sexually active teenagers or neonates.

Causes for the underestimation of STD incidence by WHO are essentially related to non-notification for which there are many co-factors including: non-diagnosis of STD; high seroprevalence of asymptomatic infections; lack of clinical suspicion that STD is a likely cause of gynaecological pathology, infertility and neonatal infections; poor or non-existing diagnostic facilities [30]; overworked doctors and other health workers who have neither the time nor facilities to investigate patients completely, nor the time to fill in notification slips for individual patients. The promotion of national government awareness and motivation to eradicate STD is an important factor in the fight against STD worldwide [31].

Family planning in Ethiopia has been provided by hospitals and Maternal and Child Health Clinics (MCHC) run by community nurse midwives under medical supervision and with regular consultant referral clinics. The Ethiopian Family Guidance Association (EFGA) started by the International Planned Parenthood Association (IPPA) provides family planning advice (FPA), advice for infertile couples and training for community nurse midwives. In Ethiopia MCHC 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. Because of the overcrowding

and long waits at the hospitals, many women preferred to attend the MCHC clinics for gynaecological advice where they would be seen by a female health care provider without delay. MCHC staff, 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 STDs. Since the mid 1980s integrated services have been developed in both hospitals and MCHC as part of the Accelerated Child Development Programme [32]. At the time of this study in 1975, the MCHC were designed to run at low cost and thus only did basic investigations. Routine bacteriological and cervical cytology examinations were only done in referral hospitals, and then were only available to the very few who could afford to pay for these tests. Cervical cancer, STD and pelvic sepsis were major causes of morbidity and mortality in Ethiopian women [33, 34].

The aim of this study was (i) to examine the socioeconomic and cultural context of family planning, modern contraception and occurrence of STDs in Ethiopia, (ii) to determine the prevalence of selected STDs, pelvic inflammatory disease (PID) and cervical cancer in women attending family planning clinics in Addis Ababa in relation to socioeconomic and cultural factors and (iii) to explore possibilities for the control of STDs. The women studied are from a larger survey of possible aetiological factors associated with STD, PID and cervical cancer in Addis Ababa [35]. The study was carried out with the permission of the Ministry of Health.

#### FAMILY PLANNING AND MODERN CONTRACEPTION

Ethiopian women have practiced traditional means of contraception chiefly to space pregnancies, although some have used contraceptives to protect against pregnancy occurring as a result of extramarital relationships. It is for the latter reason that the Ethiopian Orthodox Church clergy and Islamic leaders have withheld public support for FPCs, while others felt that family planning was a ruse to restrict population growth within the country [36]. The Ethiopian Orthodox Church has never come out publicly in explicitly prohibiting the use of modern contraceptives. Instead, the faithful consider children as a divine blessing [37]. Early marriage is another feature of Ethiopian Orthodox Christian society, which includes the Amhara, Tigre, many Oromo and several smaller ethnic groups. The preferred age of marriage for girls in this culture region is 12–15 years in rural areas and 17–22 years in towns [38–40]. Early marriage is considered to provide for an early start on bearing children who will help support the family, and for a stronger marriage [40].

Many Ethiopian men have refused to allow their wives to use contraceptives, nor did they like using

condoms. Family planning is not generally discussed among women, even the young and educated, and seldom between husband and wives, especially among less educated rural peasants where family planning is generally considered a male prerogative [40]. The 1990 National Fertility and Family Planning Survey reported that only 4% of the Ethiopian females aged 15–49 used contraception [41]. Most earlier reports estimated that contraceptive usage was by 2% of sexually active women [42]. The current rate of contraceptive use was highest in Addis Ababa women (17.4%), followed by other urban areas (12.7%) and was lowest in rural areas (2.1%). Only 2% of the users used condoms, the majority using the pill (45%) and traditional methods, but above all abstinence and the rhythm method (37%). The percentage of married women currently using modern contraceptives increased with education, from 1.7% and 9.9% among rural and urban women without formal education to 49.5% and 61.1% of high school students, respectively. Only 7% of both all women and married women who had knowledge of contraceptive methods were current users and 13% had used contraceptives at least once. The percentage of these women decreased with age [41].

The male factor remains strong in family's decisions on the number of desired children, birth spacing and the type of contraceptive used although community norms and perceptions of fertility behaviour are also involved. Infertility, common in Ethiopia largely due to the high prevalence of STDs, has traditionally been attributed to sterility of wives and remains one of the most common reasons for divorce. A study in a rural Amhara Orthodox Christian area in Harare Region found that fear of divorce because of an inadequate number of children and community rumours of infertility were the major factors in short spacing between births (1 year). In most urban families, where the preferred spacing was 2–3 years, husbands and wives were involved together in the decision making process [40]. The beneficial effect of joint decision making by husbands and wives was also revealed in a field trial in Addis Ababa, where significantly more couples in which husbands and wives made the decision jointly initiated modern contraception [43].

According to the National Primary Health Care Review the time interval between the birth of the last two children of 78% of couples in Wello Region (a predominantly Amhara Christian Orthodox and Oromo Moslem area) but 33% in Sidamo (largely Amhara Orthodox and indigenous animistic religions) was less than 2 years [43]. A population based fertility survey among 44,185 households carried out in all administrative regions of Ethiopia in 1981 reported that childlessness, divorce and remarriage rates reached 20% in women 19–24 years and older and decreased with age.

Ethnicity and religion are instrumental in sharp local and regional variations in fertility rates and STD prevalence, especially in rural areas [44].

Existing civil laws pertaining to the family and welfare legislation have impeded the formulation of laws necessary for the diffusion of family planning information and the administration of family planning services [38, 45]. A national population policy, which addresses the problem of rapid population growth and promotes family planning and the advertisement and sale of contraceptives, was formulated by the new government in 1993 [46]. Recent studies indicate a great demand in the population for family planning and also that higher contraceptive use and better gynecological and maternal health can be achieved through the family planning clinics. Nearly 45% of mothers aged 20–24 reported an unwanted first birth in rural Gonder Region [47]. In a comprehensive primary care project in rural northern Shewa Region contraceptive prevalence increased from 4% in 1988 to 21% in 1992 in spite of difficult conditions resulting from the war [48].

This discussion indicates that knowledge about contraception and abortion is still limited in many family and community settings in which it is socially disapproved. Abortion, although prohibited by the Orthodox Church and Islam, is very common in Ethiopian towns and is a major cause of maternal mortality, particularly in adolescent students who tend to have illegally induced abortions outside the government health care system [49, 50]. For some women abortion is the most common form of birth control but no study has been undertaken to ascertain the true extent of this problem. One hospital-based study of 185 cases of abortion found that a significantly larger number of women with induced abortions than spontaneous abortions allegedly used contraceptives incorrectly [51]. At the same time, a survey of sexual behaviour of high school students in Addis Ababa found that 38% of the students, 53% of the males and 24% of the females, were reportedly sexually active [52]. The persisting bleak economic situation continues to force girls into prostitution, but now as students with more education, and frequently to pay for their education, books and western style clothing. This emphasizes the need for reappraisal of appropriate family planning education and the legislation of family planning.

#### STDs IN RELATION TO PROSTITUTION AND OTHER FACTORS

The prevalence of STDs in Ethiopia is among the highest in Africa. Although the prevalence of syphilis has decreased since the 1960s as a result of increased use of antibiotics, the number of gonorrhoea, chancroid, and lymphogranuloma venereum cases reported to the Ministry of Health increased

between 3 and 5 times between 1983 and 1990. More cases of STD were reported from Addis Ababa than from the individual administrative regions [53]. Eighty-six percent of all females attending the Venereal Disease Clinic in Addis Ababa in 1981 were prostitutes, and 83% of a sample of attending males indicated that they became infected with gonorrhoea from prostitutes [54]. Rapid spread of drug-resistant strains of *N. gonorrhoeae* due to indiscriminate use of antibiotics has exacerbated the problem [53]. A population-based study in Addis Ababa found 30% of 287 prostitutes infected with gonorrhoea, 20% with vaginal candidiasis, 37% with syphilis and 24% with trichomoniasis. Physical examination revealed one or more abnormal clinical findings in 90% of the individuals [55].

Prostitution and STDs have a long history in Ethiopia, especially in the highlands [56]. Increasing poverty and deteriorating living conditions in post-revolution Ethiopia, massive dislocations of populations in the war/famine zone in the northern regions, and the refuge that increasing numbers of adolescent girls seek in the sex industry as a survival strategy represent the most recent chapter in the history of prostitution and STDs in Ethiopia [57–59]. A wide range of sexual transactions and monetary components characterise prostitution in Ethiopia, similar to the situation in other African countries [26]. Prostitution in Ethiopia does not differ significantly from other relationships; marriage constitutes a continuum of unions ranging from the Orthodox Christian *kurban* and Moslem *nika kadi* marriages to the *demoz* ("wage marriage") and *wushema* ("lover") marriages. The more casual marital forms are characterised by instability, prearranged monetary payments for sexual and domestic services, multiple partners, and non-residential unions. Similarly, there is no stigma attached to prostitution among the Amhara and some Oromo (mostly urban populations). Women in prostitution are not a homogenous group consisting only of prostitutes, but also include *talla* (beer) brewers, *tej* (honey-wine) sellers, *tej-bet* (honey-wine house/restaurant) owners, bar owners, entertainers and bargirls [56, 60].

While the major causes of prostitution identified elsewhere in Africa—poverty, lack of education and rural–urban migration prevail also in Ethiopia, two added features, the predominance of female rather than male migration and child prostitution, are prominent features of prostitution in this country [58, 61, 62]. Early age at first marriage, high divorce rates and traditional lack of access to land, property and the cash economy by divorced women, as well as war and famine conditions have been major push factors in the migration of young females to the towns and their decision to become prostitutes [38, 58]. A recent study by Baardson [62] in Addis Ababa of 177 prostitutes below 18 years of age revealed that 51 of them had been born in rural areas; the mean age at which they became prosti-

tutes was 14.7 years but several of them had begun this work at age 10. Sixty-six of the girls were school dropouts, most of them leaving school after completing grades 5 and 6. Overall, while changes in social relations emanating from the Ethiopian revolution and increasing westernisation have been associated with progressive undermining of traditional values and customs surrounding sexuality, they have also tended to provide an environment conducive for formal education and thus to postpone marriage, especially for girls, and to reduce parity [63].

In this study we have classified as prostitutes (commercial sex workers: CSW) those who, in reply to the question regarding marital status, described themselves as (i) bargirl, (ii) prostitute, and (iii) *talla* seller as described in detail elsewhere [64].

We have accepted the traditional definition of prostitution as selling sexual favours for money. In Ethiopian culture at the time of the study, premarital sexual activity was not acceptable. A girl had to be a virgin at the time of her first marriage. There was thus almost no path to prostitution from being single and a virgin. Girls/women would go into prostitution only after a broken marriage, as a result of widowhood, or possibly after running away from an incompatible marriage (frequently to a much older husband), and destitution, to support themselves (and their children) financially in a country where there was no social security. In Ethiopian culture three subgroups were commonly recognised: bargirls, (professional) prostitutes and *talla* sellers.

In the study we use these three sub-groups of women involved in prostitution:

(i) Bargirls who are the youngest are employed by bar owners to serve (as waitresses) in bars, and to provide the physical needs of their customers. These women are paid a monthly wage irrespective of their work load. Most of the bars are advertised by coloured strip lights and the name of the bar, some have a bead curtain in the doorway.

(ii) Prostitutes. These women, the professional prostitutes (*seit aderit*), are self-employed and put a coloured (red, blue, green) light in the window of their house. The youngest stand (and solicit) in front of their doorway or in the streets. The older women, better known, sit at home and wait for their clients. The higher class prostitutes would also accompany their clients to night clubs.

(iii) *Talla* sellers. *Talla* (local beer) is made by many Ethiopian women as a beverage for general consumption and special occasions. The art of preparing *talla* is learned in childhood and the early teens; however, women who call themselves *talla* sellers work from home, many of them sitting outside their house selling beer to

passers-by returning from local markets or advertising their produce by an upturned tin can on a stick in front of their house. These women, frequently widows or divorcees, are among the oldest and poorest of those involved in prostitution. Not all *talla* sellers are categorically involved in prostitution as some married women may supplement a low family income by making and selling *talla*. Seven out of 132 *talla* sellers (5%) reported having become *talla* sellers without explicitly stating that they were separated from their husbands. We left them in the *talla* seller group as there was a high probability, but not absolute certainty, that they were involved in prostitution [64].

#### CASE STUDY: PATIENTS AND METHODS

A total of 2111 women were recruited for this study without pre-selection: 542 were attenders at regular family planning clinics (FPC); the remainder were used as a control group for non-FPC women and were attending gynaecological outpatient departments (GOPD), antenatal and postnatal clinics (ANC and PNC). Four years of experience of examining women in outpatient obstetric and gynecological clinics in Addis Ababa had shown that STD and PID were highly prevalent, and particularly so in those attending the FPC; there was an apparently high failure rate of acceptance of IUCD which was thought could be attributable to pre-existing chronic salpingitis or STD; these clinical impressions needed to be confirmed and quantified (M. E. Duncan, unpublished). At the same time the staff of the MCHC at Lidetta had shown themselves to be particularly enthusiastic and willing co-researchers with Dr S. M. Ross for several studies on trichomoniasis. The choice of the two teaching hospitals and Lidetta MCHC was based on the fact that (i) the data collection and patient review could be conducted without interference to routine clinics; (ii) Lidetta MCHC which had a well deserved reputation amongst the women for whose needs it catered had a particularly well organised FPC (from which most of our FPC women came); and (iii) the catchment area of the two teaching hospitals covered all of Addis Ababa with 20% coming from the rural areas, while Lidetta covered most of south west Addis Ababa (as shown later by Bellete Mengistu) [65]. As part of the aim of the overall study had been to screen women attending obstetric and gynaecological clinics for cervical cancer, our plan had been to take half of the study population from the GOPD attenders where we would be most likely to find women with cervical cancer and CIN, and to take the remainder from the FPC and obstetric clinics in approximately equal numbers. The total number enrolled in this study was as advised by our statistician, and based on an earlier pilot

study. As women attending the GOPD were symptomatic a higher prevalence of STD would be expected in that group. Women attending the ANC because of pregnancy are considered as representative of the sexually active population as a whole. Women attending the FPC, being largely asymptomatic, but sexually active, are a group which in westernised countries would be routinely screened for cervical cancer and CIN, and at the same time were seen in an environment where a survey of STD and PID could be easily made. We hoped that it would be possible to establish clinical criteria for the diagnosis of certain STD to enable the community nurse midwives who staffed the MCHC to treat these conditions more effectively. This was the chief reason for comparing FPC with other clinic attenders.

Women attending the routine FPC, ANC and PNC at two teaching hospitals and a mother and child health clinic were the first to be registered that day, thus allowing time for completion of a questionnaire. Women attending the GOPD of the two teaching hospitals were first-time attenders in order (i) to ensure a true representation of the GOPD patient clientele by eliminating those who returned for repeat visits; and (ii) to ensure that as far as possible they had not been treated with antibiotics which could affect the diagnosis of STD and PID. Verbal informed consent was obtained from all participating women, who were offered a free test for syphilis and treatment if indicated. No women refused to participate in the study.

#### *Personal details*

These were obtained by means of a questionnaire completed, in private, by an Ethiopian female assistant. Included were: present age, ethnic group, religion, origin of residence, family monthly income (Ethiopian Birr, EB: 1\$ US = 3 EB), marital status, profession, number of lifetime husbands/sexual partners, number of years married, duration of sexual life, 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 venereal disease (syphilis or gonorrhoea) and whether treated or not, use of contraceptives and type, and present complaint or reason for attending the hospital/clinic.

#### *Gynaecological examination*

Using a good light source, daylight or angle poise lamp, full abdominal and gynaecological examination was carried out. Particular attention was paid to the state of the cervix and for evidence of upper and lower genital tract infection, involving the urethra, salpinges and Bartholin glands (USB) which were inspected (U) and palpated (USB) [28]. The majority of the women we saw and examined, unlike many women elsewhere in Africa and in industrialised countries, were thin or very thin because of lack of subcutaneous adiposity. We

defined PID as being present when there was palpable thickening of urethra (U), salpingitis (S) and Bartholin glands (B), indicative of inflammatory process involving these structures. When palpation of U, S or B caused pain, the PID was considered to be recent or acute, depending on the degree of pain or tenderness elicited. When there was only minimal or no discomfort on palpation of U S or B, or when the consistency of the fallopian tubes was described as fibrotic (which was easily determined in very thin women) the PID was considered to be chronic or old. We did not use the sign of 'cervical excitation pain' as a diagnostic feature of PID as it is notoriously unreliable and may be positive in women with conditions as diverse as normal menstruation, threatened abortion, ectopic pregnancy, endometriosis and PID.

#### Cervical cytology

A cervical cytological smear preparation was made. The slides were sent to Liège, were stained using the Papanicolaou stain and examined by light microscopy for evidence of cancer cells, excessive numbers of polymorphonuclear (PMN) cells (evidence of cervical infection), and for presence of trichomonads and monilial hyphae (evidence of heavy vaginal infection involving the cervix).

#### Serological tests

10 ml of whole blood was obtained from each woman using disposable needles and vacutainer tubes. The serum was separated the same day and stored at  $-20^{\circ}\text{C}$ . Serological tests for syphilis were carried out on all sera, using VDRL. The sera were then frozen and stored at  $-20^{\circ}\text{C}$ . Sera were transported frozen to the U.K. and kept at  $-20^{\circ}\text{C}$  until further testing could be carried out: in Edinburgh for syphilis using TPHA [66] and hepatitis B virus (HBV) [67]; in London for herpes simplex virus (HSV2) [68] and *Chlamydia trachomatis* D-K (CTD-K) and *Lymphogranuloma venereum* 1-3 (LGV1-3) [69]; in Copenhagen for *N. gonorrhoeae* (gonococcal antibody test (GAT)) [70]; and in Antwerp for *H. ducreyi* [71, 72].

#### Social and cultural analysis

The literature was reviewed against the experiences of the authors in family planning, STD, PID and social and cultural research in Ethiopia.

#### Statistical methods

Data were stored and computed in Liège. Statistical analysis was made using the Chi-square and Cochran-Mantel-Haenszel General Association Statistic [73].

### RESULTS

#### Acceptance of family planning

There were 2111 women enrolled into the study of whom 542 (25.7%) attended FPC. Utilisation of FPC and contraceptives, overall 26%, was highest in the ethnic groups Tigre (33%) and Amhara (31%), Ethiopian Orthodox women (27%), urban dwellers (29%), those with a family income of  $>10$  EB per month (33%), those aged 20–34 years (30%), those with 3 or more children (37%), age at first marriage 16 or older (28%), more than 5 lifetime husbands/sexual partners (39%), and profession (bargirls 73%, prostitutes 43%) (Tables 1 and 2). (The categorisation according to last marital status/profession was mutually exclusive e.g., a divorced woman working as a prostitute was classified as a prostitute, similarly a widow working as a seller of local beer (*talla*) was classified as a *talla* seller. The women described themselves thus "I was married now I am a bargirl". We, therefore, used the last marital status/profession for statistical analysis.)

Utilisation of FPC and contraceptives was lowest in the ethnic group Guragie (10%), Moslem women (14%), rural dwellers (10%), those with family income  $<10$  EB per month (14%), those aged  $<20$  or 35–49 years (17 and 18% respectively), those with no children or one child only (2 and 17% respectively), age at first marriage  $<13$  (23%), those who had had 2–5 husbands/sexual partners (serial divorce/widowhood and remarriage: 20%), those who were still married, but to their second or subsequent husband (18%).

Table 1. Contraceptive usage of women using family planning clinics in Addis Ababa

Mode of contraception	FP Clinic attenders		Other attenders	
	<i>n</i>	% of group	<i>n</i>	% of group
Pill	391	74.2	130	8.6
Pill + IUCD	7	1.3	1	0.1
IUCD	58	11.0	27	1.8
Rhythm	0		2	0.1
Sterilised	0		9	0.6
Other	0		6	0.4
None	71 <sup>a</sup>	13.5	1405	88.4
Total	527 <sup>b</sup>		1509 <sup>b</sup>	

<sup>a</sup>First attenders.

<sup>b</sup>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.

Table 2. Symptoms of women attending family planning and other women's clinics in Addis Ababa

Symptom	Attenders at FPC		Attenders at other clinics	
	<i>n</i>	%	<i>n</i>	%
Number of women seen	542		1569	
Pain				
Abdominal pain	18	3.3	297	18.9
Pelvic pain	11	2.2	265	17.9
Backache	2	0.4	84	5.4
Dysmenorrhoea	2	0.4	32	2.4
Other gynaecologic pain	0	—	15	1.0
Menstrual problem/ abnormal bleeding				
Amenorrhoea	3	0.6	219	14.0
Continuous bleeding	5	0.9	130	8.3
Irregular menses	5	0.9	97	6.2
Menorrhagia	9	1.7	76	4.8
"Abortion"	2	0.2	23	1.5
Other	0	—	71	4.3
Vaginal discharge				
Excessive discharge	16	3.0	209	13.3
Urinary				
Dysuria	2	0.4	79	4.8
Frequency	1	0.2	8	0.5
Other	0	—	35	2.3

*n* = number; FPC = Family planning clinic..

### Use of contraceptives

The most popular contraceptive was the pill (74%) for both FPC attenders and those attending other clinics who used contraceptives (9%). IUCDs ranked second in both groups. Only 13.5% of the FPC attenders but 88.4% of the other attenders said they had not used any type of contraception: this group of 13.5% FPC attenders were first-time attenders (Table 1).

### Prevalence of STD and PID

Most common complaints were abdominal or pelvic pain, menstrual disorder, vaginal discharge and urinary symptoms. Women attending FPC had few symptoms compared with those attending other clinics (GOPD, ANC, PNC) (Table 2), 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 STD, 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 reflect a very severe infection involving the endocervix.

The prevalence rates for serological evidence of exposure to all STDs were higher in the FPC attender 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 3 or more different STDs. Clinical evidence of PID, past or present, was more common in the FPC attenders 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 in FPC attenders: two FPC attenders had cervical cancer confirmed cytologically and one had CIN3; 35% had cervical infection and 9% a heavy trichomonal infection. Only 8 women (1.5%) attending FPC were, (knowingly or unknowingly) pregnant. More FPC attenders required treatment for salpingitis and urethritis than non-FPC attenders. Cervical ectropion (erosion) was more common in FPC attenders (Table 5).

## DISCUSSION

### Family planning and contraception

The analysis of social and economic factors associated with acceptance of family planning and contraception revealed that the high utilisation of FPC among Tigres and Amharas was associated with higher income (details not shown), and hence possibly with education. Unfortunately in this study we did not record educational status, but it was our impression that those in the higher income groups were women who had secondary or tertiary education. The reasons for this 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 there were proportionately more Orthodox Christian women than Moslems in the higher income bracket (100–500 EB per month) ( $P < 0.001$ ). Furthermore, significantly fewer attenders at FPC belonged to the poorest (<10 EB per month) group ( $P < 0.001$ ). Some women did not know what their husband's income was as they only handled the "housekeeping money". Family monthly income, as reported by the women, can only be regarded as an approximate guide to economic status. The economic aspect is enigmatic as the service was entirely free at MCHC clinics and at

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

Diagnosis		Number tested	Number positive	(%)	OR	95% CI
Syphilis (TPHA)	FPC	475	183	39	1.19	0.96–1.48
	Other	1362	470	35		
(VDRL)	FPC	496	137	28	1.08	0.86–1.35
	Other	1459	382	26		
Gonorrhoea (GAT)	FPC	481	319	66	1.53	1.24–1.91
	Other	1370	770	56		
<sup>a</sup> GAT titre ≥1/320	FPC	481	147	31	1.83	1.44–2.31
	Other	1370	266	19		
<i>C. trachomatis</i>						
(D-K and LGV1-3)	FPC	481	307	64	1.14	0.92–1.41
	Other	1365	830	61		
<sup>a</sup> Titre ≥1/64	FPC	481	220	46	1.26	1.02–1.55
	Other	1365	547	40		
Hepatitis B virus	FPC	486	192	40	1.08	0.88–1.34
	Other	1373	517	38		
HSV-2	FPC	481	196	41	1.15	0.93–1.42
	Other	1365	512	38		
<sup>a</sup> Titre ≥1/128	FPC	481	101	21	1.04	0.81–1.35
	Other	1365	277	20		
<i>H. ducreyi</i>	FPC	476	97	20	1.09	0.84–1.41
	Other	1355	258	19		
PID (BUS)	FPC	535	290	54	1.22	1.00–1.49
	Other	1557	765	49		
Bartholinitis	FPC	535	41	8	0.85	0.59–1.22
	Other	1557	139	9		
Urethritis	FPC	535	189	35	1.12	0.91–1.38
	Other	1557	510	33		
Salpingitis	FPC	535	196	37	1.38	1.13–1.70
	Other	1557	459	29		

*n* = number; OR = Odds ratio; FPC = Family planning clinic attenders; Other = women attending other clinics (gynaecological or obstetric); TPHA = *Treponema pallidum* haemagglutination assay; GAT = Gonococcal antibody test; HSV-2 = Herpes simplex virus 2; PID = Pelvic inflammatory disease; B = Bartholinitis; U = Urethritis; S = Salpingitis; <sup>a</sup>High titre indicates present or active infection.

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 as indicated by other studies [63]. Improvement in standard of living and reduction of infant mortality, both of which move parallel with higher income, education of women and raising their social status in the community, have elsewhere been shown to result in increased child survival, and in turn changing attitudes toward smaller family size and acceptance of FP by both parents.

The greatest demand for FPA was from women with more than 5 lifetime husbands/sexual partners, the majority of whom were employed as sex workers. The demand for FPA was lower for women having 2–5 lifetime sexual partners/husbands, especially in women who were still married, but to their second or subsequent husband. Hence, the observation that the complaint of infertility was

highest in those with 2 or 3 lifetime sexual partners/husbands may be of significance. 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%) in those married after the age of 25 years. Age at first marriage/coitus had a further indirect influence on FPA acceptance. Parity was significantly (*P* < 0.001) associated with age at first coitus: those with sexual debut age 13–18 had the greatest 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.

Prevalence of STD and PID

The seroprevalence rates for STD and PID in Addis Ababa FPC attenders is very high. In particular there were 31% with GAT titres ≥1/320,

Table 4. Family planning clinic attenders and their sero-negativity or sero-positivity to none, one or more STDs

		Sero-neg <sup>a</sup>	Number of STDs seropositive						Total
			1	2	3	4	5	6	
FPC	No of women	23	62	107	113	104	67	6	542
	(%)	(4)	(12)	(20)	(21)	(19)	(12)	(12)	
Non-FPC	No of women	101	200	314	316	289	125	224	1569
	(%)	(6)	(13)	(20)	(20)	(18)	(8)	(14)	

<sup>a</sup>Sero-neg = Sero-negativity = no sero-positivity for any STD.



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

Condition	n	Attenders at FPC Total	%	n	Attenders at other clinics Total	%
Number of women seen	542			1569		
<i>Pelvic inflammatory disease excluding salpingitis and urethritis</i>						
PID/parametritis	20			106		
Pelvic abscess <sup>a</sup>	0			10		
Peritonitis <sup>a</sup>	0	20	4	8	124	8
<i>Salpingitis</i>						
Acute/chronic	141			222		
Pyosalpinx <sup>a</sup>	0	141	26	17	239	15
<i>Urinary tract infection</i>						
Upper "UTI"	1			12		
Urethritis	101	102	19	32	32	2
<i>Noted but not treated</i>						
Cervical ectropion (Cervical erosion)	32	32	6	32	32	2

n = number; FPC = family planning clinic.

<sup>a</sup>required emergency admission.

46% with antibody to genital chlamydia IgM  $\geq 1/8$  or IgG  $\geq 1/64$ , and 21% with antibody to HSV-2  $\geq 1/128$ : these titres are indicative of present active or recent gonococcal, genital chlamydial or herpetic infections respectively. These prevalence rates are far higher than the few published, available data from FPC elsewhere in Africa: gonorrhoea 3–17% [1–4, 74], genital chlamydia 16% [5] and syphilis 18% [2] (Table 6). A contributing factor in this study may have been the proportion of women in prostitution attending the FPC (20%), two times higher than the proportion of women in prostitution attending other clinics (11%). The rates for gonorrhoea and genital chlamydiae were significantly higher ( $P < 0.001$  and  $P < 0.05$  respectively) than for women attending obstetric and gynecological clinics. As most gonococcal and genital chlamydial

infections in women are silent [28, 75] these women form a reservoir of infection, infecting and being infected by promiscuous men who transfer the infection to their wives [76, 77]. In this study, the chief differences between a prostitute, bargirl or *talla* (local beer) seller were age and income. In general, prostitutes had higher incomes and were older than bargirls; both groups maintained their job by virtue of not becoming pregnant. *Talla* sellers, on the other hand, were frequently widowed or divorced, usually older women, and they would not lose their job should they become pregnant. Not all *talla* sellers were involved in prostitution although the majority of those in this study were.

Analysis of PID against marital status/profession showed PID in 49% of women who were married and 72% of prostitutes. Prevalence of PID was

Table 6. Reports of prevalence of STD in family planning clinics in Africa

Country	Culture (%)	Serology (%)	Source and reference
<i>Gonorrhoea</i>			
Swaziland	2		Mehcus <i>et al.</i> , 1980 [4]
Nigeria—Zaria	3		Nsofor <i>et al.</i> , 1989 [2]
Ibadan	5		Onifade <i>et al.</i> , 1972 [74]
South Africa	10		Hall <i>et al.</i> , 1978 [3]
Kenya	17.5		Hopcraft <i>et al.</i> , 1973 [1]
Ethiopia		66 (titres $\geq 1/40$ ) 31 (titres $\geq 1/320^a$ )	Present study
<i>Genital chlamydiae</i>			
South Africa	16		Ballard <i>et al.</i> , 1986 [5]
Ethiopia		64 (titres $\geq 1/16$ ) 47 (IgG $\geq 1/64$ and/or IgM $\geq 1/8^a$ )	Present study
<i>Genital herpes</i>			
Ethiopia		41 21 (titres $\geq 1/128^a$ )	Present study
<i>Chancroid</i>			
Ethiopia		20	Present study
<i>Syphilis</i>	RPR/VDRL	FTA/TPHA	
Swaziland	6		Mehcus <i>et al.</i> , 1980 [4]
Nigeria—Zaria	18		Nsofor <i>et al.</i> , 1989 [2]
Ethiopia	28	39	Present study
<i>Trichomoniasis</i>	wet prep/culture	pap smear <sup>b</sup>	
Swaziland	15		Mehcus <i>et al.</i> , 1980 [4]
Ethiopia		9	Present study
Nigeria—Zaria	5		Nsofor <i>et al.</i> , 1989 [2]

<sup>a</sup>Titres are indicative of active/present or recent infection;

<sup>b</sup>Pap smear = cervical cytology smear stained with Papanicalou stain.

49% in non-users of contraceptives, 53% in women who had used oral contraceptives and 61% in those who had used IUCDs (unpublished data). That 26% and 19% of FPC attenders had salpingitis and urethritis requiring treatment but without symptoms is evidence of the silent nature of PID in Ethiopia, or possibly that these women had become so accustomed to their symptoms that they regarded them as normal. Several women after receiving treatment commented on how much better they felt following treatment.

Two women with cervical cancer and one with severe dysplasia, CIN3, were diagnosed cytologically, thus the prevalence of cervical cancer for FPC attenders was 3.7/1000, and the prevalence of CIN3 1.8/1000. The prevalence of cervical cancer would warrant cytological screening of FPC attenders, but the prevalence of dysplasia is relatively low compared with Europe suggesting a more aggressive form of cervical cancer with a short pre-invasive stage [78].

#### *Control of STDs and PID using FPCs*

The FPC provides a favourable setting for screening women, particularly at risk because of high seropositivity for STD, who for lack of symptoms and lack of financial resources will not attend either an STD clinic nor a hospital for routine investigation. In the light of the findings of this study, we recommend that seroepidemiological surveys of FPC attenders be carried out from time to time to ascertain the prevalence of STD in selected but representative populations and geographical locations. FPCs should then adequately screen, treat and educate FPC attenders, their partners, and as appropriate and when possible their clients, in an attempt to control STD in the community. Because of current and traditional attitudes, considerable ingenuity will be required to achieve male compliance, yet it is imperative to treat and educate the male sexual partner(s) concurrently to avoid reinfections. This is particularly important because of the risk of HIV spreading rapidly through the community [79], which can be anticipated as it has been observed that gonorrhoea, a marker of sexual activity [80], is highly prevalent in the FPC attenders studied. Moreover STDs, especially those causing genital ulceration, facilitate the transmission of HIV.

The potential benefits of family planning, or family spacing as the EFGA prefers to think of it, include the spacing of pregnancies, advice regarding infertility, regular health checks for the mother and prompt treatment of asymptomatic STD. Where the preferred method is oral contraception, the most obvious limitation is that for high risk women there is increased risk of CIN and increased risk of STD, engendered by a false sense of security associated with increased sexual activity. Moreover, some oral contraceptives cause cervical ectropion; thus the transformation zone and the endocervical epi-

thelium are exposed to bacterial and viral agents with subsequent increase of CC and risk of STD transmission. The IUCD we found caused acute salpingitis in women who had clinical evidence of past infection, or were from high risk behaviour groups.

Condoms, recommended for prevention of HIV transmission especially in high risk groups, also have their limitations, and will have increasing limitation as free supplies to developing countries are cut. In 1991, a year's supply (100 condoms) purchased in the market place represented 30% of the *per capita* income in Ethiopia, 31.3% in Togo and 48.4% in Burundi [81]. Moreover, as President Museveni of Uganda said in 1991, "In countries like ours, where a mother has to walk 20 miles to get an aspirin for her sick child...the practical questions of getting a constant supply of condoms or using them properly may never be resolved. Young people must be taught the virtues of abstinence and self-control". Equally important are recent tests on condoms which throw doubts on their efficacy: (i) in London in 1987 a survey of condoms [82] showed that 20 out of 25 brands tested failed the then British Standards requirements of not more than 3% being faulty in the packet [83]; one brand tested had 73% which either burst or had holes [82]. In 1989, mandatory condom quality control was introduced stipulating that the percentage which did not conform to standards must not be greater than 0.4% [84]; (ii) in 1992, of those tested in southern Europe and some developing countries only 3% were shown to be "very good" in terms of strength, ageing and the absence of holes with 48% "poor" or "very poor" [85]; (iii) stringent laboratory quality checks on 633 batches of condoms from a total of 100 million condoms tested by one African country showed 243 (38%) defective. The highest percentage (36/46:78%) of batches found to be defective was in condoms donated by an international agency [86-89]. As more international aid is tied to conditional acceptance by the recipient countries of condoms from abroad [90], the likelihood is that further batches of faulty condoms will be sent to unsuspecting developing countries.

In industrialised countries explicit biological sex education and promotion of condoms are recommended for the control of STD, HIV/AIDS and to a lesser extent cervical cancer. Much of this sex/AIDS education is based on materials provided by similar agencies as those which established many of the FPC in Africa. If despite these measures in sexually liberated societies, there is evidence of condom failure [91], pregnancy, and STD with post-abortion infertility particularly amongst teenagers [92], one wonders what the chances are of success in developing countries where acceptability, availability, quality and quality control, together with the cost of condoms, are major factors, and compliance may be affected by alcohol use? The flawed thinking behind, and serious problems relating to programmes

emphasising sexuality education and condoms to limit the spread of HIV and the human papilloma virus (HPV) in South Africa have been clearly identified [93]. Interestingly, HIV seropositivity in antenatal clinic attenders in Harare is higher among the women who reported using condoms either with their husbands or, more so, with casual partners [94]. It is thus of significance that WHO has stated that "the most effective way to prevent sexual transmission of HIV is to abstain, or for two uninfected individuals to be faithful to one another" [95]. Knowledge of condom shortcomings is essential to FPC workers who will be increasingly consulted not only about matters relating to family planning and pregnancy spacing, but to education and the role of condoms in preventing spread of STD and HIV/AIDS.

While we did not quantify it in this study, during a 7 year period two of us observed a high failure rate of IUCD when suitability for IUCD was based on the absence of "infection" according to examination of a gram stained cervical cancer smear preparation, rather than on the absence of clinical signs of present or old salpingitis, as diagnosed by the presence of palpably thickened fallopian tubes. We observed that when the IUCD had been fitted in the presence of palpably thickened fallopian tubes, within a short period of time, frequently as little as one week, the women returned to the FPC complaining of low abdominal pain, backache and irregular bleeding, symptoms characteristic of a flare up of PID. Such women required to have the IUCD removed immediately and were treated with a prolonged course of tetracycline which would effectively deal with either gonococcal or chlamydial infection. We then taught community nurse midwives attending the EFGA training courses how to diagnose PID according to the USB criteria while assessing women for FPA and IUCDs in particular. Women with clinical evidence of PID were deemed as unsuitable for IUCD and were prescribed the combined pill instead. In this way we were able to reduce the failure rate of IUCD. In addition, we adopted a policy of not fitting IUCDs for CSW, because of their increased exposure to STD pathogens (L. Mehari and M. E. Duncan, unpublished). Studies elsewhere have shown that women are quick to blame ill health or symptoms of STD and PID on a contraceptive. Thus certain effective methods of contraception have fallen into disrepute and even led to the failure of FP programmes [3].

Further possible steps to control these factors, which are more appropriately taken in public school and religious teaching, include the practice of disease-lowering ethnic traditions, customs and taboos where these are applicable. Many of the old traditions prohibit sexual activity prior to marriage. Education of girls has already been shown to increase age of marriage as girls quickly become more interested in schooling than in early marriage

and working in the home and the fields, and thus to result in a significant decrease in maternal, infant and perinatal mortality, and increased acceptance of family planning [96]. In Ethiopia education has already resulted in a reduction in parity [97]. In addition to general health education, specific advice, "Protect your body, protect your fertility" can be given during the later years of schooling with positive teaching regarding the avoidance of premarital sexual activity. Programmes incorporating these ideas are already running successfully in schools in central and southern Africa, while since the introduction of a similar programme into schools in Tennessee, the rate of teenage pregnancy has dropped by 8% [98].

In contrast to the situation in many industrialised countries, most people living in Ethiopia (and in other developing countries) are deeply religious, the majority being Orthodox Christians and Moslems [99]. Both teach the avoidance of pre-marital sexual activity, extramarital sexual activity, incest, prostitution and anal sex, whether homosexual or heterosexual. As has recently been reported [100] the practice of the principles taught by these religions [101] would not only help to control and prevent some of the known etiological factors of cervical cancer but also STD and HIV/AIDS. The practice of these principles would also go a long way toward breaking the chain of events that lead from childhood marriage and teenage pregnancy into a life of prostitution.

In conclusion, we have reviewed the literature relating to contraception and factors affecting FP acceptance in Ethiopia. We report a high prevalence of STD and PID, as well as cervical cancer/dysplasia in FPC attenders in Addis Ababa. FPCs, thus, are seen as providing a key facility for the detection and treatment of STD and PID in sexually active women as well as the tracing, counselling and treatment of their contacts. Further training of MCHC workers together with additional funding to allow more diagnostic facilities, on-site education of women attending for FP advice regarding the signs, symptoms and consequences of STD, and facilities for contact tracing and examination could be beneficially extending the role of FPC in STD and PID detection, treatment and control within the scope of the national control service. We found the utilisation rate of FPCs to be highest in the higher income group, those with three or more children, urban dwellers, certain ethnic and religious groups, those of ages 20–34 and those engaged in prostitution. Attitudes influencing acceptance of family planning, or family spacing are strongly influenced by cultural factors, particularly the husband's desire for more children and the functional role of children in the socioeconomic well-being of families. Further work remains to be done in education, especially of the lower income groups, regarding benefits of family spacing, which is beyond the scope of this

paper. While the contraceptive pill remains the most effective method of birth control, it is likely to increase the risk of acquiring STD, at the same time the IUCD increases the risk of PID (especially salpingitis) in those with asymptomatic STD. Barrier contraceptives, such as condoms, have a known high failure rate in preventing pregnancy and STDs among the most educated and motivated western nations, and in developing countries can cost between a third and half of the national family income if they are to be used regularly. Moreover, they are slow to gain acceptance except amongst those financially dependent on high risk behaviour. Thus the call for abstinence and faithfulness, now recognised by WHO to be the most effective way of preventing the spread of STDs including HIV, and essentially supported by traditional ethnic customs as well as by the teaching of the major religious groups of Africa needs to be presented in a new and imaginative way, as is currently happening in parts of central and southern Africa to the uninfected teenagers who are appropriately referred to as the new window of hope, in the AIDS pandemic.

**Acknowledgements**—We thank the staff and patients of St Pauls and the Black Lion Hospitals and Lidetta Clinic for their co-operation and Dr Philippa Wilson for her assistance in collecting data; NAMRU-5 for storing the sera and for syphilis testing using VDRL. We thank the Ethiopian Family Guidance Association for financial assistance with the salary of a part-time Ethiopian clerical assistant who collected the socioeconomic data from the women studied. We acknowledge with thanks financial assistance from Allied Medical Group for serological testing, and The Wellcome Trust for travel and secretarial expenses for MED, and the Swedish Agency for Research Cooperation with Developing Countries (SAREC: Grant SPE-AIDS-HN-03-AV), Stockholm, Sweden for support for PP and ER. We thank Mrs M. Pearce and Mrs A. Henderson for secretarial help.

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