A Study of the Sexual Behaviour and Reproductive Health of Adolescent Girls in Southeast Nigeria

Thesis submitted in accordance with the requirements of the University of Liverpool for the degree of Doctor in Philosophy by

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ABSTRACT

This thesis describes a social study of sexual behaviour and the risk of sexually transmitted infections (STI), pregnancy and abortion amongst adolescent girls in Rivers State, Nigeria. The study was part of a multidisciplinary research project which was carried out in two communities, one rural and one urban, between 1992 and 1996. The aims of the project were consistent with the policy emphasis of the early 1990's on women's "reproductive health", focussing on the previously neglected areas of STI and the health needs of adolescent women.

The social study is described in the first part of the thesis. The design of the social study was driven by the project's objective; to determine the prevalence of STI. The study therefore commenced with clinical and microbiological investigations, linked to a survey of sexual behaviour. Subsequent qualitative and participatory approaches were employed to clarify the survey data. The findings suggest that young women are at risk in several aspects of their reproductive lives. Over a quarter of sexually active girls had either a STI or had experienced a pregnancy ending in abortion. Adolescents were also at risk because of their lack of knowledge of effective methods of contraception and lack of access to reproductive health services.

In the second part of the thesis, the underlying assumptions and limitations of the research project are examined. Although conceived as a gender sensitive approach, the sole focus on the reproductive health of women has several limitations. Sexual relationships, as social relationships, are a site of the operation of power. Excluding men ignores their role in the reproductive health of women. Evidence from this study suggests that young women are at risk of STI through the agency of their partners, rather than as a consequence of their own sexual behaviour. Secondly, the project focussed strictly on adolescents, defined in age terms. In the health literature adolescence is constructed as a universalised category of risk-takers, and adolescents as a high-risk group for STI. Age-related risk is reified over other kinds of social influence such as gender and social class. The analysis of risk and the methodological approach of this project further obscured the social context of sexual relations. Risk analysis was based on the sexual behaviour of the individual. This was accentuated by the use of the survey method, which treats individuals as units divorced from their social context.

One of the aims of this project was to explore the social factors which influence the risk of STI, pregnancy and abortion amongst adolescent girls. However, the project concept and methodology was based on the epidemiological/biomedical approach to risk. It is argued that the approach limits how 'risk' is conceptualised for this population of young women. Implications are discussed for future investigations into the social context of sexual behaviour and associated health risks for young people.

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It is for Nicola that this thesis was finally completed.

I dedicate this thesis to Nicola, my closest friend and colleague.

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LIST OF ABBREVIATIONS

AIDS	Auto-Immune Deficiency Syndrome
B1, B2	Boys Focus Group Discussion numbers 1, 2 etc.
CI	Confidence Interval
CIOMS	Council for the International Organisation of Medical Sciences
CPD	Cephalopelvic disproportion
CSW	Commercial Sex Worker(s)
D&C	Dilation and curettage
DHS	Demographic and Health Survey
EPI	Extended Programme of Immunisation
FGD	Focus Group Discussion(s)
G1, G2	Girls Focus Group Discussions 1, 2 etc
FLE	Family Life Education
HIV	Human Immunodeficiency Virus
II	Individual Interview
IUD	Inter-Uterine Device
IEC	Information Education and Communication
LGA	Local Government Area
LSTM	Liverpool School of Tropical Medicine
MCH	Maternal and Child Health
NGO	Non-Governmental Organisation
ODA	Overseas Development Administration (now known as the Department for International Development; (DFID))
OR	Odds ratio
PHC	Primary Health Care
PLA	Participatory Learning and Action
PID	Pelvic Inflammatory Disease
RPR	Rapid Plasma Reagin
RTI	Reproductive Tract Infections
SS1, SS2	Senior Secondary School years 1, 2 etc.
STI	Sexually Transmitted Infection(s)
TPHA	*Treponema pallidum* haemoglutination assay
U1, U2	Urban Girls Focus Group Discussions 1, 2 etc
UNAIDS	Joint United Nations Programme on HIV/AIDS
UniPort	University of Port Harcourt
WAI	War Against Injustice
WHO	World Health Organisation

CHAPTER 1 - INTRODUCTION

This thesis describes a study of the reproductive health of adolescent girls in south-east Nigeria. The study was a component of a larger research project, "Reproductive Morbidity in Port Harcourt, Nigeria", a collaboration between the Women's Health Group of the Liverpool School of Tropical Medicine and the Department of Obstetrics and Gynaecology, University of Port Harcourt, Nigeria. The project was funded the Overseas Development Administration (now the Department for International Development).

The aims of the larger research project as stated in the project documents were:

1. To assess the prevalence of sexually transmitted infections (STI)[1], pregnancy and abortion in adolescent girls.

2. To understand the social factors affecting sexual behaviour, and the risk of STI, pregnancy and abortion.

3. To assess clinical signs of reproductive morbidity in adolescent girls.

The expected outcomes of the project were, firstly, recommendations for the detection and treatment of STI amongst this population of adolescent girls and, secondly, policy recommendations for strategies to improve the reproductive health of adolescent girls.

The research was conducted between 1992-1996 in Rivers State in two communities: Kebara Dere (K'Dere), a rural community 40km outside the State Capital, Port Harcourt; and Orogbum, a peri-urban community within Port Harcourt itself. The research was multidisciplinary and involved teams to investigate the social, clinical and microbiological aspects of the study.

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[1] HIV infection was not investigated. At the time of the study, Nigeria had not published any sentinel surveillance data on HIV, and HIV was felt to be a politically sensitive issue in the country. In addition, the research team felt that publishing HIV prevalence data on two specific communities within an area perceived to have a low rate of HIV infection would potentially expose the communities to prejudice.

The Principal Investigators designed the overall project and the project timeframe. The author was recruited by the Women's Health Group to design and take responsibility for the social aspects of the study[2]. A gynaecologist and a microbiologist were seconded from the University of Port Harcourt to lead the clinical and laboratory teams. The epidemiologist/statistician for the study was not recruited to the Women's Health Group until eighteen months after the project commenced.

This thesis is based on the social research conducted by the author within the wider project. The objectives of this thesis are:

1. To describe the social study within the wider project, and specifically
   i. to assess the prevalence of STI, pregnancy and abortion in adolescent girls in two communities in Rivers State Nigeria, and
   ii. to describe the sexual behaviour, and risk of STI, pregnancy and abortion amongst adolescent girls.
2. To examine critically the underlying assumptions and limitations of the wider project.

The thesis is divided into two sections. Chapters Two through Five describe the study conducted by the author within the wider project and address Objective 1 of the thesis. Chapter Six is a reflexive consideration of the assumptions and limitations of the overall project design and addresses Objective 2.

Chapter Two reviews the literature which provides the background to the project. The first section contextualises the aims of the project within the international health policies of the early 1990's, particularly in terms of the policy shift to "Reproductive Health". The second section summarises what is generally understood about the scale and causes of adolescent reproductive health problems in developing countries.

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[2] A Project Organogram is given in Appendix 1 to show the area of responsibility of the author and other team members. This thesis describes the research conducted by the author.

Finally, the health literature on STI, pregnancy and abortion amongst adolescents in Nigeria is reviewed.

Chapter Three sets out the methodology of the study. Researching the sexual behaviour of adolescents raises important ethical and methodological issues, which are discussed. The methodology for the social study was partly determined by the project's objective to determine the prevalence of STI. The first research activity in each community was designated by the Principal Investigators to be a survey of sexual behaviour followed by a clinical examination and microbiological tests for STI. In the rural study this limited the scope and time available for the qualitative and participatory research, which were primarily used to clarify survey findings. The methodological approach of the urban study benefited from the findings of the rural study. This allowed a much more comprehensive survey and follow up qualitative research. A participatory approach was taken to the local dissemination of the project's findings, especially in the urban community. This final Dissemination Phase, designed by the author with the epidemiologist, ND, is also described as part of the Methodology. The chapter sets out the different stages of the social study in chronological order.

Another investigation was 'piggy-backed' onto the rural survey of adolescents. This was a cross-sectional survey of STI and reproductive morbidity amongst older women of reproductive age (20 years and above). This investigation is not described in detail since the findings are not directly relevant to this thesis. Similarly, the methods for the clinical and microbiological investigations are not described in detail but are summarised in Appendix 2.

The findings of the social study are set out in Chapter Four. Findings are described for each community under the topic headings: demographic characteristics of respondents; sexual relationships; sexually transmitted infections; pregnancy and abortion. Each section commences with a description of the quantitative data followed by the qualitative findings. The clinical and microbiological findings of the project are not described here but are summarised in two papers: Brabin *et al.* (1995) and Ikimalo *et al.* (1999), which are included as Appendix 12 and Appendix 13 respectively.

Chapter Five discusses the findings of the project. The first section explores the limitations of the methodology. Then the main findings of the social study are related to other studies of adolescent reproductive health. This discussion is divided into two parts, the first a discussion of the findings on the prevalence of STI, pregnancy and abortion. The second part is a discussion of the sexual behaviour, risk of STI, pregnancy and abortion amongst adolescent girls. Possible implications of the study findings for adolescent health policies and programmes are described in the final section of the chapter.

Chapter Six addresses the third objective of this thesis. This chapter considers how the project is limited by its exclusive focus on women; its assumptions about adolescents; its methodological approach and its assumptions about risk of STI. The chapter also discusses whether the project achieves its objective of understanding the social aspects of sexual behaviour and the risk of infection, pregnancy and abortion.

Chapter Seven provides a summary of the insights gained by this research. In light of the discussion of the limitations of the overall project assumptions and design (Chapter Six), it suggests what might have been achieved with different approaches and methodologies.

CHAPTER 2 - POLICY BACKGROUND AND LITERATURE REVIEW

2.1 INTRODUCTION

The wider research project, "Reproductive Morbidity in Port Harcourt, Nigeria", was a joint project between the University of Port Harcourt and the Liverpool School of Tropical Medicine. The project was written and funded in 1992. In the project background documents, the rationale for the research is based on the need to look beyond the reproductive health needs of women when they are pregnant and to focus on other 'neglected' aspects of reproductive health, such as sexually transmitted diseases. The project concept can be located within international health policy themes that were current in the early 1990s, namely:

- a move from population control policies to a wider policy agenda of reproductive rights,
- a concern with women's health *per se*, rather than their role as mothers,
- the conceptualisation of a broader range of 'reproductive health' issues for women,
- an increased interest in the reproductive health of adolescents.

This chapter outlines the policy background for the wider project and reviews the public health literature relating to the social aspects of the project. The chapter is divided into three sections. In Section 2.2 the project is contextualised within the public health policy environment in the early 1990s. In section 2.3 the literature is reviewed on the health issues related to sexually transmitted diseases, pregnancy and abortion amongst adolescents in developing countries. Finally, in section 2.4 public health literature is reviewed on the sexual behaviour and reproductive health of adolescents in Nigeria.

2.2 THE POLICY BACKGROUND OF THE PROJECT

The Reproductive Health Approach

It has been argued that the health sector, more than any other, targets women (Beall 1995). However, until recent years, women have been perceived as the passive beneficiaries of health care and the targets of population control efforts.

A shift in policy emphasis towards the health needs and rights of women can be traced through the changes in population policies from the 1960s. Population control policies aimed at developing countries were couched in the developmental thesis that population control could stimulate economic and social progress. However it is argued that the emphasis on population control by Western governments also stemmed from self-interested concerns about Malthusian notions of unchecked population growth and global resources, together with Cold War fears about the spread of communism (Lane 1994). Women's fertility was seen as the problem and these policies targeted women as 'contraceptive acceptors' (Kabeer 1994).

Population policies have been criticised for their emphasis on 'control' rather than choice. Examples of such policies include: the one-child policy in China and using payments as incentives for accepting sterilisation amongst poor populations (Lane 1994). In sub-Saharan Africa, many countries resisted population control policies until the 1980s, arguing that they were under-populated and more people were needed to develop natural resources (Pearce 1994). Furthermore, men were largely invisible in the implementation of policies. Pearce (1994) cites the protests of Nigerian women against the policy bias in a polygamous society, which sets a target for the number of children for women, not men:

> The privileging of males did not go unnoticed in a program which advises four offspring per woman and [childbearing] age limits of 35 and 60 years for females and males respectively (Pearce 1994: 68).

A similar shift towards women's health needs occurred in the provision of health care in developing countries. In 1978 the Alma Ata Conference of the World Health Organisation launched a shift in health policy towards universal primary health care (PHC), which ideally would be a participatory and a holistic approach to health care for all (Beall 1995). However, shortly after the launch of 'Health Care for All' there was a global shift in macro-economic policy towards structural adjustment. This restructuring of government organisation and finance also involved the health sector. Although Health Care for All proposed a range of activities to be integrated at the primary health care level, in practice the operationalisation of PHC focussed primarily on vertically delivered programmes such as Ante-Natal Care, Maternal Child Health (MCH), Extended Programme of Immunisation (EPI), and the Essential Drugs programme. These programmes have generally adopted a target approach around a fixed range of activities. They involve women, but at fixed stages of their lives: as children up to the age of six, during pregnancy and as mothers of small children. In the PHC model implemented in many deveioping countries, a woman is essentially 'invisible' from the age of six to her first pregnancy and then after her childbearing years (Beall 1995)

Since the 1980s there have been several policy initiatives to try to make health policy gender sensitive. In 1987 the World Health Organisation launched the 'Safe Motherhood' initiative which was a response to the criticism that the main concern of MCH programmes was the health of infants, and women were only targeted as conduits of health care for their children: "where is the 'm' in MCH?" (Kabeer 1994). The Safe Motherhood initiative aims to address the estimated 500,000 maternal deaths which occur annually by providing access to emergency obstetric care for life-threatening complications associated with pregnancy and childbirth.

The "reproductive health" approach was conceptualised at the end of the 1980s by the Ford Foundation, the International Women's Health Coalition, the Population Council and WHO (Lane 1994). The reproductive health concept is a comprehensive approach to women's well being, looking at issues of infertility, abortion, sexuality, sexually transmitted diseases, menstruation and menopause, in addition to the previous programmatic foci on maternal health and family planning. Since the early 1990s, the

reproductive health agenda has shifted further. Two world conferences: the International Conference on Population and Development in Cairo, 1994, and the Fourth World Conference on Women in Beijing, 1995, have laid out a much wider reproductive health agenda which includes issues such as 'rights' to a healthy sexual life, and the involvement of men in sexual and reproductive health. However the focus of reproductive health policies is primarily women and men are usually included only when it is in the strategic interests of women's health.

Although a reproductive health approach places "women at its centre" and is the result of critiques of population policies by feminist population scholars, its focus still revolves around women's biological reproductive functions (Lane 1994). Similarly, the field of 'women's health' is usually confined to the study of reproductive health and illness. The aims of the Women's Health research group at the Liverpool School of Tropical Medicine, and this project, reflected the policy focus on women's reproductive health emerging in the early 1990s. In recent years some feminist scholars have advocated that 'engendering' health policy requires looking beyond reproduction to ways in which health and experience of health care are influenced by socially determined gender roles, resources, perceptions and expectations (Guidelines for the Analysis of Gender and Health, LSTM 1999). For example, although not considered to be a women's health issue, tuberculosis claims more women's lives globally than all the causes of maternal mortality, and it is thought to be significantly underreported amongst women in developing countries (Holmes *et al.* 1996).

Sexually Transmitted Infections[3]: a Neglected Women's Health Issue

In 1991 a book entitled 'The Culture of Silence' (Dixon-Mueller and Wasserheit 1991) summarised the increasing public health concern with STI, particularly amongst women. This phrase was first used by Mere Kisekka in 1989 in a presentation to the Nigerian Society of Obstetricians and Gynaecologists, and subsequently used as an analogy for the theme of the book: the neglect of STI amongst women:

> Women have internalised the ethic of nobility in suffering such that pain and discomforts emanating from their reproductive and sexual roles are accepted as the very essence of womanhood.....Social stigma and hence the culture of silence [are] attached to sexual and reproductive problems, the geneses of which are invariably perceived to be women (Kisekka M 1989, in Dixon-Mueller and Wasserheit 1991: 1)

Prior to the late 1980s policy makers, programme planners and donor agencies afforded STI low priority, particularly amongst women, since it was assumed that they only affected a small segment of the population such as commercial sex workers. However, since then the public health concern with STI has increased for several reasons. The primary impetus for the focus on STI has come from the HIV/AIDS epidemic. One of the routes of transmission of HIV is through sexual intercourse and the presence of other STI has been demonstrated to increase the risk of acquiring HIV. Grosskurth *et al.* (1995) have shown that by improving the routine diagnosis and treatment of STI in a rural setting in Tanzania, the incidence of HIV was reduced by 40%.

Policy interest in STI amongst women was linked to the emergence of reproductive health policy and concern about the effect of STI on women. Women are biologically more susceptible to the acquisition of STI than men because of the different surface

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[3] This thesis uses the term sexually transmitted infections (STI) since it deals primarily with those reproductive tract infections that are sexually transmitted. Reproductive Tract Infections (RTI) include a variety of bacterial, viral and protozoal infections of the lower and upper reproductive tracts of both sexes, which include conditions such as candidiasis which are not necessarily sexually transmitted.

areas and natures of genital tract mucosa. For example, an infected man has about a 60 % chance of transmitting gonorrhoea to a woman per coital episode compared to a 30% chance from an infected woman to a man. Other sexually transmitted infections probably have a slightly lower risk of transmission per coital act (Cates 1993). STI are more likely to be asymptomatic amongst women[4]. For example, the majority (60-70 percent) of gonococcal and chlamydial infections in women can be asymptomatic (Adler *et al* 1996). As a consequence, women are less likely to recognise their infection through symptoms. Furthermore, even women who recognise their symptoms are less likely than men to present at health facilities or other health providers for treatment for STI (Dixon-Mueller and Wasserheit 1991).

The consequences of STI if left untreated are severe for women. STI, particularly gonorrhoea and chlamydia, are thought to lead to acute or chronic pelvic inflammatory disease (PID), which may lead to infertility. PID is thought to be the leading cause of infertility in many African countries. Within so-called pro-natalist cultures, this has devastating social consequences for women (Dixon-Mueller and Wasserheit 1991). STI has also been associated with ectopic pregnancies and adverse pregnancy outcomes, including neonatal and infant infections (WHO 1995; Schwab Zabin and Kiragu 1998). Carcinoma of the cervix is now widely held to be sexually transmitted, with increased risk deriving from early age of first intercourse and multiple sexual partners (WHO 1995).

Control of STI amongst women, therefore, has important public health implications not only for their associated morbidity and potential sequelae but also as an intervention for HIV prevention.

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[4] Although recent evidence suggests that men have more asymptomatic infections than previously thought (Grosskurth *et al.* 1996).

Policy Focus on Adolescents

Policy interest in adolescents in general has increased in recent years. The main focus in developing countries has been on adolescent sexual behaviour and reproductive health. The interest has come from two directions: demographic concern with adolescent fertility and, more recently, the increasing number of HIV-infected young people (Mensch *et al.* 1998). For example, at both the International Conference on Population and Development at Cairo and the Fourth International Conference on Women in Beijing adolescent vulnerability to unintended pregnancy and to HIV/STI were highlighted as important global health issues. The stated goals of the conferences included to:

> Protect and promote the rights of adolescents to sexual and reproductive health information and services, and reduce the number of adolescent pregnancies (in ICRW 1996: 5)

WHO defines adolescents as aged between 10-19 years. Adolescence is defined as the transition period between childhood and adulthood and involves a social, psychological and biological transition (in Santos Ocampo and Hipolito-Nancho 1994; WHO 1995; Bongaarts and Cohen 1998). In the 'adolescent' health literature this life-stage is clearly associated with sexual experimentation and drug taking, risk-taking, rejection of authority and a sense of immortality (Plant and Plant 1992). For some commentators, such behaviours are presented as a function of being young and essential to the process of transition from childhood to adulthood. However, it has been suggested that these behaviours are the root of the "new morbidities" of adolescents, such as substance abuse, smoking, STI, HIV/AIDS, adolescent pregnancies (Santos Ocampo and Hipolito-Nancho, 1994).

This project focussed on girl adolescents (aged 10-19 years) who had reached menarche. However, the construction of the 'adolescent' and the focus on adolescent behaviour in the adolescent health literature has been criticised. This is discussed in Chapter Six.

2.3 ADOLESCENT REPRODUCTIVE HEALTH

Sexually Transmitted Infections and Adolescent Health

Sexually transmitted infections include a variety of bacterial, viral and protozoal infections of the lower and upper reproductive tracts of both sexes. The STI investigated in this study were *Trichomonas vaginalis, Chlamydia trachomatis, Nisseria gonorrhoea,* and *Syphilis*[5]. In addition the study included an investigation into the incidence of symptomatic *Candida albicans,* although this is caused by an overgrowth of normal flora in the vagina and is not necessarily sexually transmitted. Table 2-1 overleaf provides a summary of the symptoms and complications of these STI if left untreated.

A review of STI amongst adolescents in developing countries suggests that prevalence data of STI amongst different age groups should be used with caution (WHO 1993b). The most reliable data are derived from population/community-based studies, but these are expensive and difficult to carry out. Similarly the lack of standard definitions and the variety of different study designs make cross comparisons problematic. Health facility-based studies are more common but do not reveal the same age related patterns of STI distribution and adolescents tend to be underrepresented (WHO 1993b). Health facility-based data are likely to reflect the age and sex related utilisation patterns, rather than actual disease prevalence, and will therefore reflect the type of facility, its relative accessibility to different groups and local perceptions about the symptoms and the related health seeking patterns.

Given the limitations of the data, epidemiological studies of STI suggest that the peak incidence is found amongst young people. Population-based studies suggest that the highest rates of STI are found amongst people aged between 15-29 years with the highest prevalence amongst the 15-19 year olds (WHO 1993b).

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[5] The prevalence of HIV infection was not investigated in this study.

Table 2-1: Summary of STI Symptoms and Complications

STI	Aetiology, Signs and Symptoms	Complications (with % likelihood among infected women)	
Candidiasis	Results from an overgrowth of normal vaginal flora (specifically a yeast-like fungus, *Candida.*) Symptoms include vaginal discharge (with a yeast-like odour), irritation and vaginal itching.	None	
Trichomoniasis	Caused by a flagellate parasite. Associated with a profuse, frothy, thin, foul-smelling vaginal discharge, burning during urination, and occasionally lower abdominal pain.	HIV transmission	3 fold increase
Syphilis	Primary, and most infectious, stage consists of painless ulcers often unnoticed by women. If untreated the disease proceeds to a second stage of systemic infection followed by an extended latent phase and a potentially lethal tertiary stage.	HIV transmission Fetal death Low birth-weight or prematurity Congenital infection of infant	2-10 fold increase 0-25% 15-50% 40-50%
Chlamydia	A sexually transmitted bacterial infection (*Chlamydia trachomatis.)* Women commonly have no symptoms. May be associated with vaginal discharge.	Upper tract infection PID* HIV transmission Fetal death Low birth-weight or prematurity Congenital infection of infant	8-10%, 10-23% following abortion 3-6 fold increase 10-33% 30-30% 25-30%
Gonorrhoea	Sexually transmitted bacterial infection (*Neisseria gonorrhoea.*) Symptoms include vaginal discharge and burning during urination, upper tract infection associated with lower abdominal pain and abnormal menstruation. A blood borne phase may be manifest by a rash and painful joints. Cervical infection can be asymptomatic.	Upper tract infection PID* HIV transmission Fetal death Congenital infection of infant	10-40%, 15% following abortion 2-9 fold increase 15-67% 30-45%
* *Upper Tract Infection (PID)*	Pelvic Inflammatory Disease is an inflammation of the upper genital tract, arising from obstetric, contraceptive (IUD) or gynaecological causes (principally reproductive tract infections.)	Infertility Ectopic pregnancy Chronic Pelvic pain Recurrent upper tract infection Miscarriage and stillbirth Low birth-weight or prematurity	15-25% 6-10 fold increase 15-18% 20-25% up to 40% 15-67%

Sources: Dixon-Mueller and Wasserheit 1991, and Nigerian National Guidelines Task Force
Notes: Likelihood of complication calculated from evidence from industrialised countries

Prevalence rates for syphilis show slight variation from other STI since community-based surveys suggest that the prevalence is highest amongst persons over 25 years (WHO 1993b). Amongst the general population in some countries in sub-Saharan Africa, HIV sero-prevalence data suggests that young women aged 15-25 constitute a group at high risk of acquisition of the virus. In Uganda twice as many women as men in the 15-25 years age group are reported to be HIV positive (CPO 1992, in Senderowitz 1995). Similarly in Zaire a recent study showed that HIV infection was four times more common in women than men in the 15-30 year old age group (Panos Institute 1989, in Senderowitz 1995). In general, the highest rates of STI including HIV are found within urban rather than rural settings (WHO 1993b).

Different reasons have been suggested to account for the age and sex distribution of STI. It is postulated that young women are biologically more susceptible to STI by virtue of the nature of the genital tract and mucosa and the stage of their physical development. Furthermore, there are believed to be social and cultural factors that increase a woman's vulnerability to infection.

Women are biologically more susceptible to acquisition of STI than men because of the different surface areas and natures of genital tract mucosa (Cates 1993). Amongst young women, the physiology of the developing cervix is thought to further increase young women's susceptibility to STI transmission (NAS 1996 in Schwab Zabin and Kiragu 1998; WHO 1995). For example, a study of first coitus before menarche amongst Ethiopian women found that the prevalence of all markers for STI (except cervical carcinoma) were significantly higher in women who had their first sexual intercourse before menarche (Duncan *et al.* 1990 in WHO 1995). The authors conclude that susceptibility is increased by the immature genital tract mucosa combined with the traumatic first coitus. Menstruation may also increase the risk of sexually transmitted infection through poor menstrual hygiene, postulated to be more of a problem for young women (Huq and Khan 1991, in WHO 1995).

Many studies which document the high prevalence of STI amongst adolescents cite sexual behaviour and, in particular, a propensity for sexual experimentation and risk taking amongst adolescents as the cause. The WHO review of STI amongst adolescents (1993b) suggests that certain educational and behavioural factors lead to high-risk behaviour amongst adolescents. Mbizvo and Bassett (1996) suggest that STI serve as a marker of the extent of multiple partners and casual sexual encounters. Santos Ocampo and Hipolito-Nancho (1994) similarly cite increasing rates of sexual intercourse and multiple sexual partners as the reason for the observed higher rates of STI amongst adolescents.

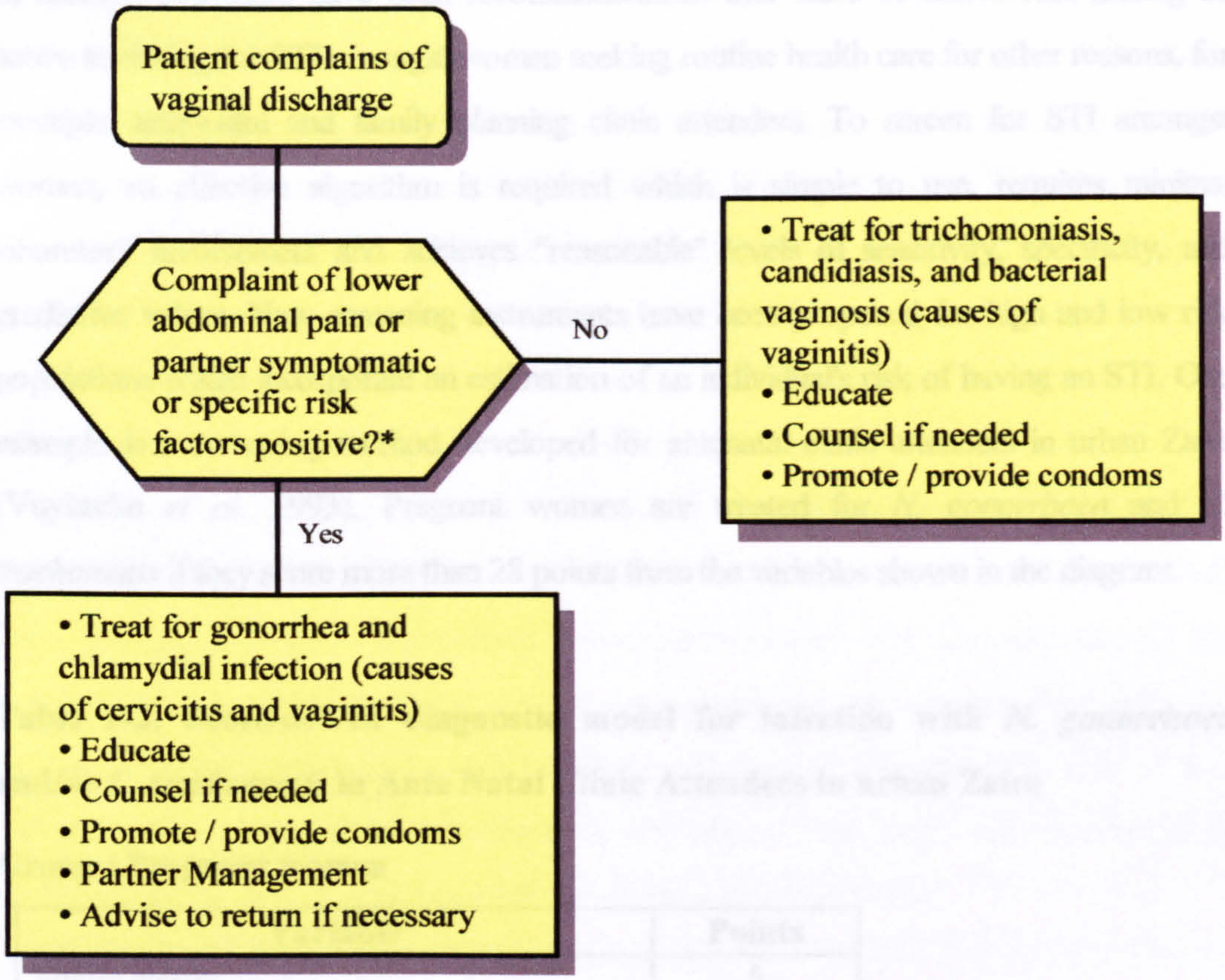
Different social and cultural factors have been postulated as increasing young women's vulnerability to acquiring STI. A number of studies have described how socio-cultural and economic constraints influence a woman's bargaining power within a sexual relationship to negotiate the terms of sex and precautions to prevent pregnancy or STI (summarised in Kemp 1992). The bargaining position of adolescent women is compromised further by virtue of their youth. Beliefs promoting respect for elders, female sexual submissiveness and male dominance reduce young women's notions of self -efficacy to negotiate within relationships (Schwab Zabin and Kiragu 1998). Many studies describe an increase in the number of young women who seek "sugar daddies" for economic support (*op. cit.*). Furthermore sexual violence, coercion, and exploitative commercial sex work allow little choice to women to protect themselves from STI. Evidence suggests that there are large numbers of adolescent women entering prostitution in many developing countries. A study in Thailand suggested that there are 800,000 prostitutes under the age of 20, and, of these, 200,000 are below the age of 14 (Senderowitz 1995). In a review of reports of rape from a number of countries Heise (1993, in Senderowitz 1995) found that 40-47 percent of reported rapes were perpetrated against girls aged 15 years and below, and 18 percent of these were against those aged nine years and under.

The problem of under-treatment for STI is exacerbated amongst adolescent women. Young women are less likely to recognise symptoms as representing a problem and generally do not make use of health facilities which are perceived as being unwelcoming to young people (Schwab Zabin and Kiragu 1998; WHO 1993b). Furthermore knowledge of symptoms, treatment and transmission of STI, including HIV, have shown to be limited in many adolescent populations in developing countries and many young people feel that they themselves are invulnerable (Schwab Zabin and Kiragu 1998). In general, adolescents tend to under-utilise health services (WHO 1993). However, even with accessible and acceptable health services for adolescent women, diagnosing STI is difficult because many women do not have signs and symptoms and laboratory diagnosis is technically demanding. One of the purposes of conducting this study was to make recommendations for the improved diagnosis and treatment of STI in adolescent girls in Nigeria.

Detection and Treatment of STI

Despite widespread recognition of its importance, early detection and treatment of STI is not unproblematic. Accurate diagnosis requires laboratory facilities of a scale and quality that are not feasible in many resource poor settings, particularly in rural areas. Simpler tests have been developed such as the leukocyte esterase (LE) test but its accuracy needs to be improved (PATH 1997). In response to the difficulty of accurate diagnosis, WHO has advocated the use of syndromic management in resource poor settings since 1988 (PATH 1997). Syndromic management is based on diagnostic treatment 'algorithms', or flow charts, that allow the health care worker to diagnose and treat clients who present with symptoms. The strategy is cost-effective, can be integrated into routine care at health facilities and has the benefit for the patient of immediate diagnosis. An example of an algorithm/ flow chart for the syndromic management of STI is given in

Figure 2-1: WHO Flowchart for the Syndromic Management of Vaginal Discharge



* Positive = age <21 years; or single; or >1 partner; or new partner in past 3 months.

Source: WHO, Workbook 4, 1995

One of the problems, however, with diagnostic algorithms is that they evidently rely on a patient reporting with symptoms and may, therefore, fail to address the needs of many women. STI such as *N. gonorrhoea* and *C. trachomatis* are likely to be asymptomatic in women, and even with symptoms women may not seek care (Dixon Mueller and Wasserheit 1991). Furthermore, the groups of women considered to be at highest risk of STI, such as commercial sex workers (CSW) and young women, may have less access to

the routine health services where diagnostic algorithms are implemented (Adler *et al.* 1996).

In recent years there have been recommendations that there be active case-finding or active screening for STI amongst women seeking routine health care for other reasons, for example, ante-natal and family planning clinic attenders. To screen for STI amongst women, an effective algorithm is required which is simple to use, requires minimal laboratory involvement and achieves "reasonable" levels of sensitivity, specificity, and predictive values. New screening instruments have been proposed for high and low risk populations which incorporate an estimation of an individual's risk of having an STI. One example is a screening method developed for antenatal clinic attenders in urban Zaire (Vuylsteke *et al.* 1993). Pregnant women are treated for *N. gonorrhoea* and *C. trachomatis* if they score more than 28 points from the variables shown in the diagram.

Table 2-2: Score-driven diagnostic model for infection with *N. gonorrhoea* and/or *C. trachomatis* in Ante Natal Clinic Attendees in urban Zaire

Group : Pregnant women

Variable	Points
Single status	5
> 1 partner in the last year	10
Age <25 y	14
Age 25-34 y	11
Report of vaginal discharge	1
Report of lower abdominal pain	3
LED urine test + (10-25 PMNs/ML)	10
LED urine test ++ (~75 PMNs/ML)	12
LED urine test +++ (~500 PMNs/ML)	15

Pregnant women with a score of >28 were considered infected

The calculation of risk and the development of a model such as the one proposed by Vuylsteke *et al.* (1993) is based on a survey of STI and sexual behaviour within a

defined population. Statistical analysis is used to test which people have STI against other 'risk factors' [a variable related to the probability of change in health status]. For STI, such risk factors are related to the transmission dynamics of the organism, such as frequency of contact with an infected partner, rates of sexual partner change, type of sexual contacts (e.g. oral, anal or vaginal sex), and frequency of sexual acts (Anderson 1992) or may be specific to a particular setting or population. In a study to determine risk factors for gonorrhoea, syphilis and trichomonas infection among women attending family planning clinics in Nairobi, Daly *et al.* (1994) conducted interviews and examinations with women attending two family planning clinics. Odds ratios were used to calculate the relative risk of STI for each variable. Risk was associated with unmarried status and reporting more than one sex partner in the last year, although these associations did not hold in the multivariate risk analysis. Other risk related sexual behaviours reported in other studies include age at sexual debut, large numbers of lifetime and current sexual partners, high risk characteristics of sex partners, specific sexual practices such as anal intercourse and dry sex, frequency and timing of sexual intercourse (Aral 1994). Health behaviours related to risk of STI include condom and other contraceptive use, vaginal douching, male circumcision, timely health care seeking and compliance to therapy (Aral 1994).

From an analysis of risk factors, several different predictive models for STI amongst selected populations have been proposed (Vuylsteke *et al.* 1993; Maynaud *et al.* 1995; Behets *et al.* 1995). However, in all the screening algorithms derived in resource poor settings, being young (age less than 21 years) and unmarried are considered to be highly indicative of risk of STI infection. For example, in the hierarchical algorithm recommended by WHO (1993a), being aged less that 21 and single are sufficient risk factors to treat for *N. gonorrhoea* and *C. trachomatis* if a girl complains of vaginal discharge. None of the proposed models have been tested for their sensitivity and specificity of screening for STI amongst a population of adolescent women.

Health Consequences of Adolescent Pregnancy and Childbearing

In the developing world adolescent childbearing has been decreasing over the last twenty years. However, it is now regarded as a greater social problem than it was in the past (Singh 1998). The greater attention to adolescent childbearing may be in part due to an increased understanding of the health risks involved, together with an acknowledgement of the benefits of education and postponed childbearing for young women. The increased awareness of adolescent childbearing may also be related to the social context within which it takes place. In the past more adolescent women were married and childbearing took place within the context of marriage. Adolescent childbearing may now be perceived as a social problem because it increasingly takes place outside marriage (Singh 1998). Health risks for adolescent childbearing may be due both to biological factors, such as the underdevelopment of the body, and to social factors associated with adolescents' status within society.

Pregnancy during adolescence has a higher risk of maternal mortality in most countries, particularly in developing countries. Harrison (1985, in WHO 1995) showed that women under 16 were approximately seven times more likely to die during pregnancy and childbirth than women aged between 20-24. WHO reports that for women aged between 15-19, the risk of dying during pregnancy and delivery is 20-200% greater than for older women (WHO 1989a in Senderowitz 1995). It is not known if age is the risk factor for maternal mortality or whether there may be other explanatory factors such as parity. For example, a study by Koenig *et al.* (1988 in Kurz 1997) found that age was not a significant risk factor in maternal mortality once parity (first birth) was taken into account.

There is less information on the age-related factors affecting maternal morbidity (Kurz 1997). Evidence suggests that adolescent pregnancy and childbirth is associated with increased risks of pregnancy-induced hypertension, pre-eclampsia, toxemia, anaemia, cephalopelvic disproportion (CPD - when the baby's head is too large to pass through the mother's pelvis), vesicovaginal and rectovaginal fistulae, difficult delivery together

with risks to the development and survival of the foetus. However such negative health outcomes are not unique to adolescents and can be experienced by women of all ages (Senderowitz 1995; Schwab Zabin and Kiragu 1998; WHO 1995). For some morbidities it may not be age but other factors generally associated with adolescent pregnancy which contribute to risk. For example, WHO states that the link between hypertension and primigravidae is a well established. Adolescents suffer more from obstructed labour and fistulae than adult women, but other potential confounding factors other than age are rarely discussed, such as maternal height (Kurz 1997).

Cephalopelvic disproportion is one problem that may be directly linked to the developmental status of the adolescent. Moerman (1982, in WHO 1995) showed that, although adult height and menarche may be achieved early in adolescence, the pelvis is not fully developed until later. Harrison *et al.* (1985, in Senderowitz 1995) similarly found that bone growth of the birth canal is not complete for about two to three years after growth in height has finished. CPD is known to be related to prolonged labour and the risk of vesicovaginal fistula. In Nigeria 33% of fistula cases involve women below the age of 16 years (WHO 1989, in Senderowitz 1995).

Adolescent pregnancy does not only pose a risk to the health of the woman. Several studies have shown that the health risks of low birth weight and prematurity are higher amongst infants born to adolescent mothers than to those in their twenties, and this discrepancy is far greater in developing countries (Senderowitz *et al.* 1990, in WHO 1995). Low birth weight and prematurity are, in turn, linked to stillbirths and neonatal deaths. Adedoyin and Adetoro (1989) found that in Nigeria the perinatal mortality rate is higher for infants born to adolescent girls. Cohort studies have shown that the risks of increased mortality persist until the second year of life (LeGrand and Mbacke 1993, in WHO 1995). Long terms effects on children are lower nutritional status, poor language development and increased behavioural problems (Buvinic 1998).

The literature on adolescent pregnancy shows that adolescents and their children experience more of the negative health consequences of childbearing than adult women (Kurz 1997). However, as discussed, age is not necessarily the primary risk factor for adverse health consequences. The age-related physical risks of childbearing seem to be dramatically reduced in areas where the general health conditions are good and there is access to good quality prenatal care. In societies where these conditions exist, childbearing at the age of 15 or 16 does not present significant risks to the mothers' health (Makison 1985, in Singh 1998). This suggests that social and economic circumstances also contribute significantly to the determinants of the risks of negative health outcomes associated with adolescent pregnancy and childbirth.

Maternal morbidity has been shown to be higher in populations which are malnourished. In addition to the general effects poor nutrition has on pregnancy, nutritional status of adolescents influences the growth of the birth canal and therefore increase the risks of CPD, as discussed earlier (WHO 1995; Schwab Zabin and Kiragu 1998). Poverty and gender discrimination increases the likelihood of adolescent women being malnourished. Access to good quality health services is influenced by the costs of care and the proximity of the services. Poorer adolescents, and those in rural areas, are therefore more at risk of adverse pregnancy outcomes (WHO 1995).

One of the key influences on the health outcome of adolescent pregnancy is related to whether the pregnancy occurs within marriage. Several commentators have suggested that, although marriage does not solve the problems of early childbearing, it does provide a social support system (Senderowitz 1995; Singh 1998; Blanc and Way 1998). Despite this, power relations within the household and cultural beliefs concerning first childbirth may still place a young woman in a disadvantaged position with regard to decision-making about seeking care. For example, the Fulani in Nigeria believe that a woman's first delivery should be at home (Senderowitz 1995 and Kiragu 1998). In Nsanje district in Malawi the major decision maker for care seeking for primigravidae young married women is her mother-in-law (Ashwood-Smith H,

Safe Motherhood Project, Personal Communication, 1999). Despite the health risks, childhood marriage and immediate post-pubertal childbearing has not received much attention from policy makers and health practitioners because of tacit cultural, political and religious support of the practice in some countries (Schwab Zabin and Kiragu 1998).

Most attention concerning the risks of adolescent pregnancy has been directed towards premarital pregnancy and childbearing and its consequences. In a review of the social consequences of early childbearing on adolescent women in four countries, Buvinic (1998) found that there is not necessarily an impact on the woman's marital prospects in the long term, but there are clear effects on family and household composition and economic position. In Chile, teenage motherhood reduces by half the chance of living with the father of the child or in a nuclear family. Adolescent mothers are also less likely to receive financial support from the biological father. Teenage motherhood is also associated with higher fertility and closer spaced families, together with the increased likelihood that daughters of adolescent mothers themselves become pregnant as teenagers (WHO 1995; Buvinic 1998).

It is well documented that childbearing has a negative effect on the economic position of adolescent women and that the effect is increased for those who are poor to begin with. Adolescent mothers are more likely than older mothers to have less education, no job or a lower paid job. The link between educational status and childbearing and, therefore, the impact on the long-term economic position of the woman is clear. In many parts of sub-Saharan Africa, young women who become pregnant are expelled from school or dropout voluntarily for a variety of reasons (WHO 1995). In Kenya, as many as 10% of girls may drop out of school because of pregnancy (Gage and Meekers 1994). The earnings of adolescent mothers are lower than adult child bearers, even when education status is controlled for (Buvinic 1998). In a study of the consequences of early childbearing in a squatter community in Recife, Lima *et al.* (1990, in Buvinic 1998) found that adolescent mothers had an income half that of

older mothers and the prevalence of malnutrition in the children of adolescent mothers was twice that of older mothers. Buvinic (1998) suggests that such effects are not simply age-related and therefore transitory. In her study of early childbearing in four Latin American and Caribbean countries, she found that the negative economic consequences of early childbearing hold over time. However the effects are clearest for poor women, and may not necessarily hold for richer women.

In conclusion, adolescent women who give birth are at increased risk of negative health consequences. However, the risks are not necessarily solely related to their age but may be associated with factors such as first pregnancy. In addition there are clearly social and economic circumstances that affect the health outcomes of adolescents. The social context of adolescent childbearing has an important influence on health outcomes. One of the objectives of this research was to document the prevalence of adolescent pregnancy and childbearing in two communities in South East Nigeria, and to make policy recommendations for strategies to improve the reproductive health of this group.

Health Risks Associated with Induced Abortion amongst Adolescents

The degree to which pregnancy amongst adolescents is welcomed varies from culture to culture and on the situation of the adolescent. Pregnancy is often welcomed amongst married adolescents. However, indirect indications from health-facility based studies of maternal mortality of numbers of abortions or maternal deaths due to abortion complications, suggest that many women seek induced abortions for unwanted pregnancies and adolescents constitute a large proportion of this group[6].

Hospital based studies in sub-Saharan Africa suggest that 18-28% of maternal deaths are abortion related. Two community-based studies in Ethiopia and Guinea suggest that this figure is an underestimate and the real figure might be as high as 54% (Benson *et al.* 1996). Studies (mainly conducted in Nigeria) suggest that adolescents and unmarried women form the majority of patients treated for complications of induced abortion (Nichols *et al.* 1984; Okonfua *et al.* 1992). Few studies in developing countries have discussed the reasons for induced abortion. However, those mentioned include inappropriate timing of the pregnancy, fear of expulsion from school, financial difficulties, and uncertainties about the partner (Benson *et al.* 1996).

Induced abortion does not necessarily have adverse health consequences. Where abortions are performed in safe conditions, a woman's likelihood of dying as a result of abortion performed with modern methods is less than the chance of dying as a result of pregnancy and childbirth. In developed countries, the chance of death resulting from abortion is no more than one per 100,000 procedures, whereas for pregnancy and childbirth the risk of dying is 6-25 per 100,000 live births. However the probability of complications and death increases with the length of gestation (Alan Guttmacher Institute 1999).

Studies based in the United States suggest that for adolescent women aged 15-19 years early induced abortion is 24 times safer than childbirth (Senderowitz 1995). Similarly a review of consequences of induced abortion among adolescents in the States concluded that, because of the widespread use of less invasive cervical dilation techniques, there are no identifiable adverse sequelae of the abortion process (Schwab Zabin and Sedivy 1992). However where abortion is not 'safe' the picture is very different. Studies from sub-Saharan Africa report abortion-related complications of: haemorrhage, shock, sepsis, cervical and vaginal lacerations, uterine and visceral perforations, tetanus, thrombolic complications, pelvic inflammatory disease (PID) and infertility. Therefore, health risks for adolescents arising from induced abortion do not stem from age/development related factors, but from the stage of pregnancy, and the circumstances and procedures for the abortion. Social norms and values with respect to adolescent pregnancy, together with the legality of the procedure, further influence the stigma and shame associated with seeking an abortion and the social support that might be expected by the woman.

Abortion remains illegal, except for life-threatening or juridical indications, in most countries in the world (Roemer 1985). Countries where abortion is legal (elective) are mainly industrialised nations the former Soviet Union States, plus China and India. As a consequence there is little published information about the conditions of abortions, where they are conducted and by whom for most developing countries.

There are varying accounts in the published literature about the characteristics of adolescents who seek induced abortion. Two studies conducted in Zambia found that both women of low, middle and high socio-economic status sought induced abortions (Benson *et al.* 1996). However, a review of grey literature[7] suggests that women of low socio-economic status were more likely to self-induce abortions or to seek care

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[6] Not all recognised pregnancies result in a live birth. Worldwide, 15% of pregnant women spontaneously miscarry or experience a stillbirth. Induced abortion is the voluntary termination of a pregnancy.

[7] Reports and documents produced by organisations such as NGOs and international donor agencies.

from unskilled providers for reasons of cost and lack of access to alternative sources of care (IPPF 1994, in Benson *et al.* 1996).

A significant number of the studies of unsafe abortion in developing countries have been conducted in Nigeria (in their review of unsafe abortion in sub-Saharan Africa Benson *et al.* (1996) found that one third of studies conducted were from Nigeria). Literature on abortion in Nigeria is reviewed in the following section.

2.4 The Sexual and Reproductive Health of Adolescents in Nigeria

Nigeria: A Brief Overview of its History, Geography, Population and Economy

Nigeria was formed by the amalgamation of the British Colonial protectorates of Northern and Southern Nigeria in 1914. Nigeria became an independent nation on October 1st 1960, and three years later became a republic, severing all links with the British Crown. Since the first government of Nigeria, there has been a succession of military regimes that have taken over power by military coup. There was a brief return to civilian government between 1979 and 1983 and again recently (1999) to the current president, Olusegun Obasanjo[8].

Nigeria is one of the largest countries in Africa, covering 923,768 square kilometres. It is the most populous country in Africa with an estimated population of over 112 million, with an average of 122 persons per square kilometre. The Southeast and Southwest are the most densely populated parts of the country. The population is becoming more urbanised with 38% living in urban centres in 1993. The average annual population growth rate is 2.9%.

There are approximately 380 ethnic groups. The major ethnic groups are the Hausa and Fulani in the North, the Yoruba in the Southwest, and the Igbo in the Southeast. Christianity and traditional beliefs predominate in the south, whereas the north of the country is predominantly Muslim.

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[8] The main sources for this section are the DHS for Nigeria (1990) and Center for Reproductive Law and Policy (1997)

Figure 2-2: Map of Nigeria

Nigeria has a mixed economy. Since the 1970s oil has formed a dominant part of the economy and Nigeria is the sixth largest producer of crude oil in the world. There are also substantial agricultural and manufacturing sectors. The estimated GNP per capita for 1993 was $300 (US Dollars).

At the time of this study, the Federal Republic comprised 36 states plus Abuja the Federal Capital Territory. The states are further sub-divided into 589 local government areas (LGAs). The Nigerian legal system is based on English common law, statutory law, Islamic law and tribal customary law. Until the recent return to civilian rule, military decrees determined the validity of all laws, including the constitution.

Social Development and Reproductive Health

In 1990 51% of the total population was estimated to be literate but the literacy rate for women was only 31-39%. In 1996 average life expectancy was projected as 55 years for women and 53 years for men. Approximately 22% of the Nigerian population is between the ages of 10 and 19 years. Of women between the ages 15-19 years, 67% had attended primary school and 34% secondary school or above.

The National Health Policy was adopted in 1988 with the goal of enabling all Nigerians to achieve socially and economically productive lives. The Government has implemented a Primary Health Care (PHC) approach to the provision of health care, encompassing basic treatment, maternal and child health (MCH) and family planning services, the prevention and control of infectious diseases and the provision of essential drugs. PHC is the entry point to the secondary and tertiary levels of the health service. Nigeria has no social security system. However, the National Health Policy commits government to the provision of health subsidies for preventative care. Nigeria's total expenditure on health in 1987 was 0.8% of the total budget. This compares to a figure of 8% for most of Europe.

The National Policy on Population for Development, Unity, Progress and Self-Reliance seeks to achieve targets on population growth by extending family planning coverage and to improve basic health indicators (such as reducing infant mortality and crude death rates). The policy seeks to ensure access to services for "high-risk" clients (in terms of maternal health) including women under the age of 18. A further policy goal is to expand family life education[9] (FLE) in order to increase the use of family planning services by men and adolescents. The National Policy on Population

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[9] Family Life Education is an expansion of the programme formerly referred to as 'sex education'. Family Life Education is a generic term, which includes an exploration of attitudes and skills related to sexual relationships, marriage, parenthood and family health. A recent initiative in Nigeria

discourages early marriage. In Eastern States the law prohibits marriage below the age of 16 years. In contrast under Islamic law practised in the North there is no minimum age for marriage. The average age of first marriage is 16 years and the average age at first sexual intercourse for all women is 15.9 years (Nigeria DHS, 1990). Half of all women have children by the age of 20 and in 1993, 17% of all births were to women under the age of 20.

The National Social Development policy gives primary importance to the role of family life education. Although it is national policy that family life education must be a component of secondary school curricula, `it is questionable how widely this policy has been implemented. Reviews of country policies state that Nigeria is one of the few countries in sub-Saharan Africa that has a national family life education curriculum (Meekers 1994; Bledsoe and Cohen 1993). However, studies within Nigeria suggest that as it is presently taught in schools, FLE is limited to reproductive biology (Okonfua 1995; Barker *et al.* 1992).

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proposes guidelines for "Sexuality Education", a form of FLE (National Guidelines Task Force 1996).

Rates of Adolescent Sexual Activity in Nigeria

It is difficult to provide an overview of the sexual activity of adolescent women in Nigeria. The only nationally based survey is the Nigeria Demographic and Health Survey (DHS) conducted in 1990 which is based on 8,781 interviews with women aged 15-49 years. Most indicators of sexual health are reported for married women only. Since 61.4% of women aged 15-19 are single (never married), data based on married women exclude a significant proportion of adolescents, and do not represent pre-marital sexual relations. However, according to the DHS survey the median age at first intercourse for all women is 15.9 years, with variations by rural or urban residence (15.7 years and 17.4 years respectively). It is estimated that overall 55% of 15-19 year olds are sexually experienced. Median age at first sexual intercourse also varies according to education level. From the age cohort of 20-24 year olds, the proportions of women who engaged in premarital sex during their teenage years according to the level of education are: no education 8%; primary 21% and secondary or higher 39%.

All other published studies from Nigeria that focus on adolescents or young people (below 25 years) are location specific, using different populations and participant selection criteria. Furthermore, the methodologies differ considerably making comparisons difficult to draw. Although most studies provide separate data for males and females, some indicators are reported jointly (for example: multiple sexual partners in Jinadu and Odesanmi 1993; Araoye and Adgegoke 1996). Finally, since studies ask young people sensitive questions about their own sexual behaviour, they will all be subject to respondent bias. Few studies comment on the truthfulness of the responses of adolescents or report their quality control measures. Table 2-3 provides an overview of indicators of adolescent sexual behaviour in Nigeria from the published literature.

Table 2-3: An Overview of the Literature on Adolescent Sexual Behaviour in Nigeria

Location	State	Author (s)	Year	Sampling, Social Group	Sample Size		Age Range		Ever had sex		Age of First Coitus		Lifetime Partners		Multiple Partners		Ever Used Contraception		Currently Using Contraception		Ever Used Condom	
					M	F	from	to	M	F	M	F	F	M	M	F	M	F	M	F	F	M
Anambra	Enugu	Amazigo	1997	random sample of urban and rural schools	1,182	1,278	14	19	40%		n.r	n.r	n.r	n.r	25%[1]	19%	20%[2]		n.r	n.r	15%	
Ilorin	Kwara	Oraoye and Adegoke	1996	random cluster sample in schools	482	488	10	19	34%	14%	14.6	15.1	n.r	n.r	55.5%[3]		n.r	n.r	n.r	n.r	20.7%	36%[4]
Ibadan	Oyo	Dare and Cleland	1995	cross sectional survey in markets and motor parks[5]	892	371	13	26	77%	64%	16.6	18.9	1.21	3.76	n.r	n.r	n.r	n.r	n.r	n.r	18.6%	22.5%
Ile-Ife	Oyo	Jinadu and Odesanmi	1993	random sample of school students	256	0	15	19	79.5%[6]		n.r	n.r	n.r	n.r	55.5%[7]		n.r	n.r	n.r	n.r	7.8%[8]	
Lagos	Lagos	Oloko and Omoboye	1993	5 purposively selected secondary schools[9]	102	148	n.r	n.r	40%		n.r	n.r	n.r	n.r	n.r	n.r	n.r	n.r	n.r	n.r	n.r	n.r
Lagos	Lagos	Odujinrin	1991	random sample from 5 girls secondary schools	0	950	10	20	29%		16.9[10]		n.r.	n.r.	30.1%[7]		n.r	n.r	20.3%		n.r	n.r
Ibadan	Oyo	Nichols et al	1986	purposive, three part study 1) sample in schools	279	346	14	25	59.9%	38.4%	n.r	n.r	n.r	n.r	n.r	n.r	66.4%[11]	74.5%[11]	59.1%[12]	61.2%[12]	n.r	n.r
Ibadan	Oyo	Nichols et al	1986	purposive, three part study 2) sample in university	406	413	14	25	82.4%	61.2%	n.r	n.r	n.r	n.r	n.r	n.r	65.0%[11]	72.8%[11]	54.5%[12]	63.0%[12]	n.r	n.r
Ibadan	Oyo	Nichols et al	1986	purposive, three part study 3) sample in work	274	82	14	25	91.9%	91.5%	n.r	n.r	n.r	n.r	n.r	n.r	18.5%[11]	61.4%[11]	13.2%[12]	50.9%[12]	n.r	n.r

[1] reported as multiple, numbers not defined
[2] includes abstinence
[3] range from 2-6, not differentiated between males and females
[4] current use by sexually active adolescents
[5] sample includes married young people (30% of female and 17% of male respondents)
[6] in the last 12 months
[7] more than one partner
[8] unclear if "ever" or "current", likely to be in the last 12 months
[9] difficult to differentiate between female and male rates for variables since most results reported for schools, some of which were mixed
[10] mean age of sexual debut
[11] calculated from "never used" variable table 5, page 103
[12] mostly pills and condoms

A few generalisations can be made from the table:

- In studies which disaggregate data, consistently more adolescent boys had ever had sex than adolescent girls
- In two studies, the age of first sexual intercourse was lower for boys than girls by 0.5 to 2.3 years.
- Boys reported more lifetime sexual partners than girls (Dare and Cleland 1995) and more current partners (Amazigo *et al.* 1997).

Sexually Transmitted Infections (STI) and HIV/AIDS

Reports of the prevalence of HIV/AIDS suggest that Nigeria is in a much earlier stage of the epidemic than many some countries in Africa. AIDS was first reported in Nigeria in 1986. From serum samples collected between 1985-1990 of 3854 patients in Ibadan, the overall prevalence of HIV was found to be 3.2% (Olayeye *et al.* 1993). The 1993/94-sentinel sero-prevalence surveillance reported the national sero-prevalence rate to be 3.8%, with the highest prevalence found amongst commercial sex workers (CSWs). Age-specific rates were calculated for Enugu and it was found that the highest rates amongst women were in the 15-19 years age group whereas for men it was amongst the 20-29 years age group (National AIDS/HIV/STD Control Programme, 1993-1994). Although many Nigerians have heard of HIV/AIDS, few have first hand knowledge of its effects. A KAP study of HIV/AIDS amongst Lagos youth revealed that many had heard of HIV/AIDS, acknowledged it as a serious problem for the world, but not yet a problem for Nigeria (Odujinrin and Akinkuade 1991).

Several studies have reported health facility-based prevalence rates of STI amongst specific populations, such as amongst Sexually Transmitted Diseases, or Ante-natal

Clinic attenders (Bello *et al.* 1983; O'Toole Erwin 1993). However, few have reported prevalence rates of STI specifically amongst adolescents. Dare and Cleland (1995) conducted a study of the reproductive health needs amongst out-of-school adolescents and young people in motor parks in Ibadan[10]. Amongst all sexually active girls (n=151) the prevalence rates of STI tested were *Candida albicans* 4.8%, *Chlamydia trachomatis* 2.1%, and *Trichomonas vaginalis* 1.4%. No *Neisseria gonorrhoea* was found amongst women. The rates for sexually active boys (n=479) were: *Candida albicans* 0.3%, *Chlamydia trachomatis* 3.9%, *Trichomonas vaginalis* 0.2% , *and Neisseria gonorrhoea* 0.2%. Anosike *et al.* (1993) conducted a study of the prevalence of Trichomoniasis amongst students of a higher education institution, including adolescents. They report a prevalence of 31.0% amongst females and 15.6% amongst males[11]. In their age and sex specific prevalence reports, adolescent men (n=257) had a prevalence of 13.6% and adolescent women (n=256) of 39.8%.

A few studies suggest that in Nigeria attitudes towards having an STI are equivocal. Baker and Rich (1992) found in focus group discussion in Ibadan that adolescents were largely aware of their own risk STI including HIV/AIDS and of prevention measures. However, they were less concerned about having an STI, which could be hidden, than about becoming pregnant, which could not. Men in some areas are reported to believe that having an STI at some stage marks a transition into adulthood and is connected to beliefs about masculinity. Orubuloye *et al.* (1990) found that amongst men in Ado-Ekiti, gonorrhoea was called *arun gbajumo*- 'the disease of the sociable person'. In Calabar, gonorrhoea is referred to as the 'GCE' (General Certificate of Education) in reference to the proof of achievement of sexual maturity (Ogbuagu and Charles 1993).

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[10] Approximately 70% of respondents in the study were between 20-26 years of age, and approximately 30% of females and 17% of males were married.

[11] Urine samples of both men and women were tested, and in addition vaginal swabs were tested for women. The authors do not comment about the relative efficacy of the different tests used and whether using two tests in women accounts for the higher prevalence of Trichomonas vaginalis detected in women.

Several studies in Nigeria suggest that treatment for symptoms of STI is sought from a variety of sources, including self-medication with antibiotics. There are reasons to be cautious in analysing data about treatment seeking behaviour for STI. Some symptoms may not be recognised or may be considered as 'normal'; local beliefs about causes and appropriate treatment of symptoms associated with reproductive morbidity are unlikely to coincide with the allopathic (Western) medical disease definitions or aetiology and, finally, several STI are asymptomatic in many women and men. Only two published studies of perceptions of reproductive morbidity in Nigeria have attempted to analyse treatment seeking in terms of local beliefs and understandings. In their qualitative study in Lagos, Olukoya and Elias (1994) found that help sought for different ailments did not neatly segregate into different health beliefs about disease pathogenesis, and treatment sought reflected more the practicalities of service accessibility and cost. Of interest, many women did not regard vaginal secretions and discharge as necessarily related to an illness condition. In young girls it was considered to be a sign of sexual availability and the vagina is believed to dry up following menopause. In a study of reproductive tract infections amongst women in Ado-Ekiti, O'Toole Erwin (1993) describes eight locally recognised illnesses, symptoms and causes. Women recognised symptoms of lower abdominal pain, foul-smelling discharges and vaginal discharges as potentially harmful, but it was difficult to determine the level of severity of each symptom that is considered to be abnormal (also reported by a study in Ado-Ekiti by Orubuloye *et al.* 1990). Treatment-seeking was related to beliefs about causation with 'informal' (traditional, patent medicine and chemist stores) services used when conditions were defined as having 'natural' (spiritual or environmental) causes, but doctors were more likely to be consulted if conditions were ascribed to sexual activity. Even when 'western' medical treatment is preferred, several studies suggest that government-run facilities are unpopular. Women in Ado-Ekiti sought care from private practitioners for reasons of confidentiality and faster service (O'Toole Erwin 1993). Despite providing the cheapest treatment, government hospitals and clinics were not favoured by young people in Ibadan because of the judgemental attitude of staff and because

drugs were often not available (Dare and Cleland 1995). In a study of attitudes of university students towards HIV/AIDS in Ile Ife, Odebiyi (1992) found that students prefer to self-medicate for symptoms of STI because it saved time and ensured their confidentiality.

Pregnancy and Childbearing

The 1990 DHS for Nigeria reports that half of all women are married by the age of 17 and half have become mothers by the age of 20 years. Most adolescents who have given birth have only have one child. Regional differences in childbearing are striking. In the predominantly Muslim north, the median age at marriage is 15 years, whereas in the Christian south it is 19-20 years. 48% of adolescents in the North have given birth whereas the equivalent figure in the South is 17%, leading to differences in the overall fertility rate (5.5 children per woman in the South compared to 6.6 in the North). Rates of childbearing are highest amongst women with no education and rural residence.

Cohort analyses of women of different ages suggest that there is a decline in teenage childbearing overall, which is roughly paralleled with the rise in the age of first marriage and the increase in women's education (Bledsoe and Cohen, 1993). It is difficult to give accurate figures for the proportion of all births to adolescents which occur outside marriage, since marriage may be a process rather than a discrete event. However, over the last twenty years there seems to be a slight decline in premarital births as a percentage of all births to women under age 20 from 8% to 6% (Bledsoe and Cohen 1993)

Access to Contraceptives

In 1998 the Government of Nigeria launched the National Policy on Population, one of the targets of which was "to reduce pregnancy to mothers below the age of 18 years and above 50 years by 50% by 1995 and 90% by 2000" (DHS 1990).

Contraceptives are subsidised in government-owned health facilities (Briggs, 1998) and have been widely promoted in Nigeria in recent years (Oni and McCarthy 1994). In addition subsidised pills have been socially marketed through outlets other than government facilities since the 1980s and this has since been extended to condoms and spermicidal foaming tablets (DHS 1990).

According to the DHS (1990), only 4% of all women aged 15-19 years had ever used modern contraceptive methods, mostly pills and condoms. Slightly more (5.9%) had used traditional methods, predominantly the rhythm method. Women's current use of both modern and traditional methods in this age group is lower: 1.9% and 3.9% respectively. The DHS indicated that contraceptive-use increases with education and knowledge and use of contraceptives is much higher in the south of Nigeria. These trends are reflected in the reported use of modern contraceptives in studies of adolescents in different parts of Nigeria. Nichols *et al.* (1986), in a study conducted in Ibadan, reported high levels of current contraceptive use amongst male adolescents in secondary school (59.1%) and university (54.4%) but lower amongst non-students (13.2%). Current contraceptive use was higher amongst female adolescents with figures of 61.2% amongst secondary school girls, 63.0% amongst university students and 50.9% amongst non-students. Pills and condoms were the most frequently used methods. In a study of contraceptive-use amongst in-school adolescents in southeast Nigeria (Amazigo *et al.* 1997), 15% of adolescents reported ever using condoms, 2% abstinence, 2% the pill, and 1% an injectable. Adolescents' use of contraceptives (ever), and use of condoms (ever), was greater amongst students with multiple sex partners. In a study of out-of-school youth aged 10-26 years in a motor park of Ibadan, Dare and Cleland (1995) report use of condoms (ever) amongst sexually active adolescents was 22.5% for males and 18.6% for females. When use in the last six months was considered, the figures dropped to 12.2% and 5.5% respectively.

Surprisingly little research has been conducted on where adolescents in Nigeria buy contraceptives, or where they seek care in the case of reproductive morbidity.

Adolescents are not legally restricted from access to contraceptives (Centre for Reproductive Law and Policy, 1997), but it is likely that informal restrictions operate to limit contraceptive use. Health care workers may be reluctant to provide reproductive health services to adolescents since the age of consent for medical treatment in Nigeria is 18 years (Briggs 1998). Barker and Rich (1992) found that nearly all adolescent participants of their focus groups were aware of various modern family planning methods and where to get them, citing health centres, hospital, chemist, private maternity clinic and market women. Nichols *et al.* (1986) found that the principal modern methods used by adolescents in Ibadan were oral contraceptives (pills) (which were reported to be available from physicians or family planning clinics) and condoms (from pharmacies and clinics). However, adolescents' routine use of government or formal heath services and therefore access to subsidised contraceptives is largely unknown. Renne (1993) suggests that the negative attitudes of parents towards sex and contraceptive use and the worry that contraceptives might be detected are factors which inhibit young women from using modern contraceptives. Adolescents are likely to be deterred from using formal health services for a variety of factors including costs and adolescents' perceptions of health care workers' reaction to them, which in turn is likely to be influenced by norms and values around adolescent pre-marital sexual activity.

Some studies suggest that, even amongst adults, formal reproductive health services are unpopular. In their study of womens' and health-care providers' views of services in rural Nigeria, Okafor and Rizzuto (1994) suggest that maternal health services in Nigeria are deficient and inappropriate to women's needs. Respondents cited poor hygiene and medical treatment, censure and abuse from hostile health care workers as reasons for not using the service. Nigeria is a medically pluralist society and there is considerable pragmatism in choice of health care (O'Toole Erwin 1993). Options available include: government-run services of different levels; NGO and privately run facilities; traditional healers including herbalists, diviners, birth attendants; spiritual healing offered by churches; pharmacists; patent medicine stores and market drug

sellers who also provide diagnosis in addition to being outlets for pharmaceuticals. Olukoya and Elias (1994) in their study of reproductive morbidity in Lagos confirm the range of care providers and suggests that the choice of care depends on practicalities such as accessibility and cost. It could be hypothesised that adolescents, just as adults in Nigeria, have a wide choice of providers for both contraceptives and reproductive health care, and their choice will be influenced by the attitudes of care-providers, confidentiality, privacy and cost.

The reasons for the low-use of modern contraceptives amongst adolescents are unclear. The DHS reports that amongst all women 43.5% know a modern method of contraception, although the figures are higher among never married women and amongst women in the Southeast and Southwest of Nigeria. In the study conducted by Amazigo *et al.* (1997), significant numbers (36%) of adolescents rely on the menstrual cycle to avoid the fertile period Other studies in Nigeria have reported negative attitudes towards modern contraceptive use, which might explain their low uptake. Parental objections to adolescents using contraceptives in Port Harcourt included beliefs that they could kill or cause infertility (Briggs, 1998). In focus group discussions with adolescents in Nigeria and Kenya, Barker and Rich (1992) found significant evidence of myth and misinformation towards modern contraceptives. Amongst the responses from Nigeria, adolescents suggested that contraceptives might cause infertility, death, spoil their work or lead to an abnormal foetus. A couple of male respondents said that the use of condoms could lead to an infection of the genitals. Orubuloye *et al.* (1991) cite a widely held belief that condoms may come off the male, be sucked into the female's womb and cause sterility, infection or lead to death. In a study of perceptions of reproductive morbidity amongst women and men in Lagos, Olukoya and Elias (1994) report negative attitudes towards contraceptive measures because of adverse side effects including: irregular bleeding; making the tummy bloat; "'pills weaken the womb"' and "'family planning makes the husband's sperm watery"' (p.15). Another reason for non-use amongst adolescents might be because interventions to increase contraceptive use have primarily been targeted at

married couples (Okonfua, 1992). Cost has not been cited as a reason for few adolescents using contraceptives, although adolescents in general are less likely than adults to have access to cash.

Public health literature from Nigeria suggests that although the National Policy on Population for Development, Unity, Progress and Self-Reliance aims to increase access to contraceptives for women under the age of 18 years, in practice adolescent knowledge of and use of modern contraceptive methods is limited. Different studies suggest that this may be due to negative attitudes towards contraceptives or adolescents' lack of access of to formal health services.

Induced Abortion

Abortion in Nigeria is a criminal offence, unless it is performed to save a pregnant woman's life. Under the Criminal Code (which operates in the South of the country) there is a penalty of 14 years imprisonment for the performance of an abortion. In addition a medical practitioner may have his or her license suspended. A woman who consents to the performance of an illegal abortion or attempts to induce an abortion may face up to seven years imprisonment.

A significant number of the studies of unsafe abortion in developing countries have been conducted in Nigeria (in their review of unsafe abortion in sub-Saharan Africa Benson *et al.* (1996) found that one third of studies conducted were from Nigeria). WHO estimates that 60% of the demand for abortion in Nigeria comes from adolescent schoolgirls (Renne 1996). In a study of gynaecological admissions to hospital in Ilorin, Adetoro *et al.* (1991) found that abortions of all types accounted for 60.3% of all gynaecological admissions, and 74.4% of induced abortions were in adolescent girls. In a similar study between 1992 and 1994 in Ilorin, Anate *et al.* (1995) found that approximately 53% of complicated induced abortions were amongst adolescent girls. In a study of women seeking termination of pregnancy in a

private clinic in Ilorin, 35.6% were adolescents (Ujah, 1991). This is not a recent phenomenon since studies conducted in the 1970s found that adolescents constitute a large proportion of hospital admissions resulting from induced abortion (90% in Lagos and 61% in Benin) (quoted in Nichols *et al.* 1986).

Most figures on the extent of induced abortion are derived from health facility-based studies, with few community-based studies that document women's reports of induced abortion. In Renne's study (1996) 15.6% of women had aborted a pregnancy by D&C[12] at least once. In a survey of women in Ado-Ekiti, Erwin found that 16.4% of women reported a previous abortion (personal communication reported in Renne, 1996). In a sample of 841 never-married adolescent girls, Nichols *et al.* (1986) found that two thirds of those out-of school and slightly less than half of secondary and university students had been previously pregnant, of whom most elected to terminate their pregnancy by induced abortion. A study conducted by Odujinrin (1991) in Lagos found that 25.5% of sexually active girls reported at least one abortion.

Many means of inducing abortion are mentioned in the literature. In her study of the practice and perception of abortion by Yoruba women in Ekiti, Renne (1996) suggests that abortion is part of a continuum of birth control and the distinction between contraceptives and abortifacients is not clear. In her study 'abortion' covers a variety of methods for terminating a pregnancy. 'Patent' medicines used as abortifacients include: Bee-Codeine, Dr. Bonjeans, and M&B tablets; Andrew's Liver Salts, 'Alabukun' powder, Menstrogen, Panadol, Phrensic, Tetracycline and "family planning tablets". Case histories also include instances of "native medicine" provided by traditional healers. D&C in clinics is also mentioned and likely to be sought when other methods have failed. The use of a range of non-formal methods for the prevention of pregnancy and abortion is mentioned in many other studies. In focus groups with adolescents in Ibadan, Barker and Rich (1992) report that adolescents had more accurate information about methods of abortion than modern

contraceptives. Respondents mentioned henna, alum and salt provided by native doctors; lime-orange and whisky sometimes mixed with potash and tablets provided by chemists. Amazigo *et al.* (1997) report that adolescents in Anambra and Enugu use methods such as liver salts, broad-spectrum antibiotics, gin and *akawu* (sodium sesquicarbonate) as alternative methods of contraception. No studies from Nigeria explicitly attempt to quantify the extent to which women or adolescents rely on different abortifacients compared to modern contraceptives.

Despite the apparent high prevalence of abortion amongst young women, several studies show that adolescents are aware of the associated health risks. Barker and Rich (1992) found in Ibadan some young people reported that a girl who had an abortion might become weak, sickly, sterile, lose weight or have incessant bleeding or the foetus might haunt her so that she does not have another child in future. Many respondents could tell of cases of classmates who had died in attempts to self-induce abortions. A previous history of abortion was cited by women and men in Lagos as the most common reason for infertility in women (Olukoya and Elias 1994).

Several reasons for the apparently high rates of abortion are given in the literature from Nigeria. According to traditional values in the Ekiti area, a woman should welcome a pregnancy, and there is a local belief that it is easier to "bring down a pregnancy" than to prevent conception (Renne 1996:483). Reasons given as to why adolescents resort to induced abortion in various parts of the country are mainly: wanting to remain in school; and being unmarried (Renne 1996; Nichols *et al.* 1986; Ujah 1991; Barker and Rich 1990; Anate *et al.* 1995). Renne (1996) suggests that in the Ekiti area, the moral and ethical ambiguity about contraception and abortion, in addition to factors such as socio-economic status and access, explains the low uptake of modern methods of contraception and the reliance on abortion as a method of birth control.

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[12] Dilation and Curettage - uterine evacuation procedure using small forceps and curette.

Summary

The Women's Health Group at the Liverpool School of Tropical Medicine was started in 1990. The changing direction of health policies was clearly reflected in the group's focus on the reproductive health needs of non-pregnant women. Rather than concentrating on reproductive rights, however, the aim of the group was to improve the health of non-pregnant women so that they would have better pregnancy and maternal health outcomes. For example, the background documents to the project states:

> although non-pregnant women do not face the risk of childbirth, their state of health prior to their first pregnancy and between pregnancies has important repercussions on maternal health, outcome of pregnancy and quality of life [13]

Since its formation, the Women's Health Group has conducted a series of studies into issues related to the reproductive health of non-pregnant women. The study in Nigeria took as its focus the reproductive health of (non-pregnant) young women, specifically adolescents between menarche and 19 years of age, and the negative health consequences of sexual behaviour, namely STI, pregnancy, and induced abortion.

The health literature suggests that adolescent women are more at risk of negative health outcomes from STI, pregnancy and abortion than older women. The review of the literature cited above makes it clear that this is an urgent issue. What is not clear, however, is the extent to which these risks are derived from the age and developmental status of adolescents or from the social or economic influences on their sexual behaviour and access to health care.

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[13] Report of the Health Strategies for Women and Infants in Developing Countries, Triennial Review, September 1993

Several studies describe the sexual behaviour of adolescent in Nigeria and the health outcomes of STI, pregnancy and abortion. The literature suggests that about half of all adolescent women are sexually experienced, and the median age of first intercourse is 15.9 years. Half of all women are married by the age of 17 years and have given birth by 20 years, although overall there has been a decline in adolescent childbearing in recent years. Adolescent women have the highest rates of HIV infection of all age cohorts. The prevalence of other STI amongst adolescents is also high compared to older women. Although exact figures are not necessarily reliable, many studies report high rates of abortion amongst adolescent women in Nigeria. In this age group, access to and use of modern contraceptives, and to formal health services, seems to be limited.

The aims of this project were to document the prevalence of STI, pregnancy and abortion amongst adolescent girls in two communities in Rivers State Nigeria and to examine social factors related to the risk of these health outcomes. Diagnosis of STI was based on signs and symptoms (syndromic) and aetiological (microbiological) diagnosis. It was anticipated that comparison of syndromic and aetiological diagnosis would allow the development of a flow chart for detection of lower tract infections. It was further anticipated that the social investigation into the sexual behaviour of adolescent girls would lead to the identification of behavioural 'risk factors' for STI, and the development of risk assessment schedules which could supplement the flow charts for screening and detecting STI in this population[14]. Therefore, the expected outcomes from the research were algorithms (or flow charts) for the detection and case management of STI in adolescent women, and policy recommendations for strategies to improve the reproductive health of adolescent girls.

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[14] "Strategy Document 1992-1995" Health Strategies for Women and Infants Work Programme, LSTM

CHAPTER 3 - METHODOLOGY

3.1 INTRODUCTION

The overall project methodology was driven by the objective to determine the prevalence of STI amongst adolescent girls in two communities, one rural and one urban, in Rivers State Nigeria. The study was therefore conducted in two consecutive stages, the first in the rural community and the second in the urban community. The primary activity in each community was a survey, which involved a 'social' interview, a clinical examination and microbiological tests for different STI[15]. Subsequent to these surveys there were opportunities to conduct several other social investigations, including qualitative and participatory approaches.

This chapter describes, in chronological sequence, the methodology for the social studies within the wider project. The methodology for the social study evolved over the course of the project and reflected the implicit ongoing negotiation of the role of the author within the project team. Within a week of starting the job, the author arrived in Nigeria with the mandate to ensure the implementation of the rural survey. The rural survey instrument had already been designed and the survey team recruited before the author joined the project. The rural study in K'Dere community commenced with the survey of all post-menarchial adolescent women. The rural survey instrument provided little in-depth information about sexual behaviour, particularly the factors which may influence risk of STI. The period between the rural survey and the start of the urban survey allowed time for the author to conduct more in-depth investigations into sexual behaviour and factors that might influence the risk of STI in the rural community. These issues were investigated in structured re-interviews of a sub-sample of adolescent women who had tested positive for STI, and with age-matched sexually active controls to provide more detail about their sexual history. Ten of the women who had tested positive for STI also took part in semi-structured in-depth interviews. Finally focus group discussions were conducted with

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[15] A description of the clinical and microbiological investigation is given in Appendix 2

young women and men in the community. This allowed a more inductive exploration of attitudes towards adolescent sexual behaviour, STI, pregnancy and abortion in the village. Initial research findings were disseminated to the community through a series of meetings.

The findings of rural social investigations had a major influence on subsequent research. By the commencement of the urban survey the 'social' aspects had been separated from the clinical research instrument to form an independent questionnaire. This instrument reflected the emerging issues of risk of STI for young women, particularly the role of partners. Similarly the approach of the urban survey was more 'adolescent friendly' involving a longer period of introduction and interaction with participants and a team of specially trained peer interviewers to administer the social questionnaire. For logistical reasons of access to large numbers of adolescents, the survey to determine the prevalence of STI in adolescent girls in the urban community took place in two stages. First a survey was conducted amongst schoolgirls in the five secondary schools in and around the Orogbum community, Port Harcourt. This was followed by a community-based survey of out-of-school girls. Follow-up qualitative research consisted of six focus group discussions with schoolgirls, and a 'mystery client' exercise in chemist shops in the community.

The research phase was followed, in 1996, by an extended period of local dissemination of findings. This activity was designed by the author with the epidemiologist (ND) and was funded as a separate project. The aim of the project was to involve adolescents and their 'gatekeepers' (parents, teachers, community elders) in discussing the research finding and seeking locally acceptable interventions to improve adolescent reproductive health. This phase of the research employed predominantly participatory techniques. The dissemination phase of the urban study is included in the description of the methodology since it served as a means to validate research findings.

The sequence of social studies is summarised in Table 3-1. In the following sections, the description of each study includes: the rationale for the study; the respondents and sampling procedures, the interviewers; the study process; analysis and quality assurance mechanisms. The methodology for the social study evolved over the course of the project and later investigations gained from the findings and experience of the early investigations. Although the subjects for the main project were all adolescent women, adolescent boys were included in focus group discussions and participatory approaches of the social investigation. It was hoped that the inclusion of boys in the social investigations would provide a gender comparison of attitudes and beliefs about STI, pregnancy and abortion.

The wider project included clinical examinations and microbiological tests. These investigations were not the sole responsibility of the author and are not included in the description of the 'social study'. However, the prevalence of STI is reported since it has relevance to this thesis. In addition several separate studies were 'piggy-backed' onto the main study of adolescents. For example, in the rural community a survey of reproductive morbidity was conducted amongst older women of reproductive age (20 years of age and above). This provided a cross-sectional comparison of the prevalence of STI amongst all women of reproductive age (including adolescents). The methods and findings of the clinical and microbiological investigations, and the rural cross-sectional survey are summarised in two papers: Brabin *et al.* (1995) and Ikimalo *et al.* (1999) (which are included as Appendix 12. and Appendix 13).

Investigating adolescent sexual behaviour is 'sensitive research': "research which potentially poses a substantial threat to those who are or have been involved" (Lee and Renzetti 1990). The subject is sensitive on two accounts: it involves research into a personal subject, and it involves young respondents. Research into sexual behaviour is considered to be sensitive in many societies because it intrudes into deeply personal

experiences. The sensitivity of the subject affects both the availability and reliability of the data (*ibid.*). Few studies attempt to directly observe sexual encounters hence most information is obtained from individuals' reports of their actual or intended behaviour and of their beliefs, attitudes and knowledge. This reliance on self-reports inevitably means that much of the discussion of methodological issues centres on 'trustworthiness' or 'validity' of responses.

Conducting sex research with adolescents similarly requires consideration of trustworthiness and validity, but the age of the respondents adds a further level of sensitivity. Sexual relations amongst adolescents are likely to be socially censured in certain settings, making both the subject of the research and access to young people contentious amongst their 'gatekeepers'[16]. Furthermore their young age and position in society requires consideration of the ethics of their participation in the study.

The methodology for this project had to take into account the sensitivities of the subject and the age of the respondents. Within the project team, the author took responsible for the initial approach to adolescents, and for the development of methods used to ask information about sexual behaviour. This chapter commences with a discussion of the ethical and methodological issues raised by the research subject.

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[16] Likely to be parents or guardians plus teachers and community leaders.

Table 3-1: A Chronological Outline of the Stages of the Social Study

Method	Description	Respondents	Interviewers / Facilitators	Appendices
Rural Survey	Structured questionnaire on basic demographic information, general clinical examination, pelvic examination, and collection of samples for Lab testing for STI.	Adolescent girls, post-menarche, total 439. (Also, older women of reproductive age, total 520.)	2 community nurse/midwives, 2 youth corps doctors	Rural Questionnaire, Appendix 5
Rural Re-Interviews	Interviews to elicit further information on sexual and reproductive histories. Questionnaire based on established risk factors for STI, designed to triangulate with the Rural Survey	Sub-sample of Rural Survey respondents, including all STI +ve, and an equal number of age-matched STI -ve, total 43 adolescent and 53 older women.	3 community nurse/midwives	Rural Risk Questionnaire, Appendix 6
Rural Focus Group Discussions	FGDs with young people of both sexes to gather broader in-depth information about sexual behaviour, and about attitudes to pregnancy, abortion and STI.	Young people (<23 yrs) of both sexes. Each group comprised a Key contact and 6-10 of his/her friends of the same sex. Total 11 Focus Groups.	Author + trained community field workers	Topic guide, Appendix 10
Rural In-Depth Interviews	Follow-up interviews to elicit further information on the sexual histories, and on the reaction to positive diagnosis, of STI +ve adolescent girls identified in the Rural Survey	Total 10 STI +ve adolescent girls	Author + trained female fieldworker	Summaries, Appendix 11
Urban Schools Survey	Social Questionnaire based on a refined version of the Rural Questionnaire, including demographic information and questions on sexual activity. Followed by a separate general clinical examination, pelvic examination, and collection of samples for lab test	Girls aged 14-19, post-menarche, currently attending school, total 1,081	Specially trained peer interviewers	Urban Social Quest; App. 7, Clinical Quest; App. 8, Interviewer training Appendix 3
Urban Community Survey	Social Questionnaire including demographic information and questions on sexual activity. Followed by a separate general clinical examination, pelvic examination, and collection of samples for lab testing for STI, conducted by the clinical team.	Girls aged 14-19, post-menarche, currently not attending school, total 336. Respondent selection by random cluster sample survey using 'yard' form to identify eligible girls in each compound.	Specially trained peer interviewers (same as in Schools survey) plus specially trained community volunteers	Urban Social Quest; App. 7, Clinical Quest; App. 8, Interviewer training Appendix 3
Urban Focus Group Discussions	FGDs with school-attending girls to gather broader in-depth information about methods to prevent pregnancy and induce abortion.	Sub sample of girls from the Schools Survey. Each group comprised a Key contact and 6-10 of her friends. Total 6 Focus Groups.	Female clinician (CIW) + Author observing	Topic guide, Appendix 10
Urban Mystery Client Exercise	Exercise to investigate the role of chemists and drug-sellers in providing contraceptive information and advice to adolescent girls.	Six chemist shops in the Orogbum area. The 'mystery client' spoke to whoever was serving behind the counter.	One of the specially trained peer interviewers from the Schools survey	
Dissemination of Findings	Meetings with young people (men and women), parents, teachers, community leaders and health care workers to discuss study findings in both rural and urban communities.	690 adolescents, 163 adults, plus 192 in a final Public Meeting	Clinicians involved in the urban survey, author, ND	

3.2 Ethical Issues in Sexual Behaviour Research

Sexual behaviour research is subject to the ethical principles which govern all research on human subjects. The Council for International Organisations of Medical Sciences (CIOMS) has developed guidelines for medical research which are based on the principles laid out in the Helsinki Declaration of 1964 (Ringheim 1995). The guidelines state that research should be conducted according to the principles of:

- **Autonomy and respect of persons**
- **Beneficence**
- **Non-maleficence**
- **Justice**

Each of these issues is discussed in the context of this research.

Autonomy and respect of persons

The principles of autonomy and respect require that informed consent is given to participate in research. The subject's consent must be freely given for what is done (requiring full information on the procedures) and by a person competent to do so (Paxman and Zuckerman 1987).

Adolescence is generally defined as the period of psychological development from that of a child to that of an adult, in which the individual gains the cognitive ability to make informed decisions. Therefore in conducting research involving adolescents it is necessary to consider whether or not they can be judged to be mentally competent to decide to participate or not. The rate of development progresses at different rates from individual to individual, making it difficult to define a general age of competence. Adolescent research is therefore often guided by the legal age of majority. In many settings, however, the specified age of majority varies according to the activity it is design to limit, be it voting rights; minimum age of marriage; or consent to sexual intercourse. In a review of laws

and policies affecting medical interventions with adolescents, Paxman and Zuckerman (1987) argue that in general the law permits treatment on adolescents' consent for conditions where the minor may be reluctant to seek care if their parent is involved. One area is reproductive health treatment, for example for STI, contraception, pregnancy and abortion *(op. cit.)*. WHO guidelines also cautiously suggest that in the area of sexual health, consent to participate in research should be given by the adolescent alone, provided that researchers take note of the age of majority in a particular context when planning research (Ringheim 1995).

Nigeria has no national guidelines on the minimum age for consensual intercourse or access to reproductive health treatment and services. The Penal Code in Northern Nigeria considers that children under the age of 14 years are not allowed to give consent, including for sexual intercourse. However there is no minimum age for marriage. In southern Nigeria, the Criminal Code prohibits sexual intercourse with a girl under the age of 13 years. In Eastern States the law prohibits marriage below the age of 16 years. The National Policy on Population (1988) promotes improved access to reproductive health services for women under the age of 18, and there are no legal restrictions to adolescents' access to contraceptives (The Centre for Reproductive Law and Policy 1997).

The eligibility criteria for this study required that all girls had started menstruating. In addition, in the urban area no girls under the age of 14 were recruited. Following WHO guidelines, it was decided that consent would be sought from the adolescent alone, without seeking parental consent but involving them as far as possible. In both communities a programme of informing 'gatekeepers' was conducted before participants were recruited (discussed in the next section). Furthermore, in the rural community, the initial project activity was a cross-sectional survey to determine the prevalence of STI in all women of childbearing age. This ensured a widespread understanding of the study procedures amongst older women, including mothers of the adolescent girls. In the urban community, because it was more difficult to reach parents, explanatory letters were given

to girls to take home. There was a time delay between the initial contact with the girl and the medical examination to allow time for her to discuss the issue with parents. It was acknowledged that some girls might prefer not to reveal the nature of the study to parents and therefore not show the letter to parents.

The purpose of the study, and the different stages and procedures, were explained to girls at the first meeting. Verbal consent was sought at each stage of the study process. It was explained to prospective participants that the study involved an individual interview, and clinical investigations ranging from urinalysis to a pelvic examination. It was stressed that girls were free to withdraw at any stage without influencing the advice or treatment given to them. The urban questionnaires were designed in such a way to keep a record of numbers of girls dropping out at different stages.

In anticipation that the requisite sample size needed might influence the teams to exert subtle pressure on girls to participate, the importance of the right to withdraw was discussed and re-emphasised during the monthly research team meetings.

Beneficence

The principle of beneficence in research is one of maximising benefit and minimising harm. Research into sexual health should be justified by the benefits derived from the research. For adolescents it is justified when, in the cultural setting, sexual behaviour is proscribed and clandestine yet adolescents are at risk of negative health outcomes (Guidelines for Research on Reproductive Health Involving Adolescents, in Ringheim 1995).

In this study all participants were offered reproductive health advice and treatment for any infections identified. Free treatment was also offered to any partners referred by girls identified as having an STI. In the rural area all participants were given 1-2 weeks supply of iron and folic acid tablets. In the urban area accurate measures of the

girls' haemoglobin levels were made during the clinical examinations and iron and folic acid were only given to girls who were anaemic.

Two follow on project activities were conducted as a direct result of this research. A dissemination project was conducted to involve the urban community in discussions about the sexual health of adolescents. Following on from this, a young persons' 'drop-in' health centre was set up in the community and a locally appropriate family life education curriculum is being developed by a local NGO supported by the Nigerian research team members.

Non-Maleficence

The principle of non-maleficence or 'do no harm' states that research should not jeopardise the physical or mental well being of the participant. This includes protecting participants from social risk which might occur from a breach of confidentiality. For adolescents it is important that their right to innocence is respected by not asking young adolescents questions, which are beyond their realm of experience (Ringheim 1995).

In the study confidentiality of information was stressed. Interviews were conducted in private and all information was stored in the project office away from the sites of data collection. Results of clinical tests were only disclosed to study participants. It was made clear to participants that test results and information were confidential and would not be divulged to anyone, including parents and guardians.

The principle of 'do no harm' prohibits questions which are unduly invasive, humiliating, biased or accusatory. Questions included in the survey and in interview topic guides were primarily centred around established variables for risk of sexually transmitted diseases and risk of unwanted pregnancy such as sexual activity, number of partners, age of first intercourse and contraceptive use. Questions about sexual behaviour were not asked of girls who said they had never had sex.

Justice

The principle of justice in research demands that all subjects are treated equally and participants should also be beneficiaries. In the study some girls over the age of 14 years had not reached menarche and were therefore ineligible for inclusion. In order not to openly distinguish between participants, all girls were invited to go through the same process: social interview, meeting with the clinical team and a visit to the treatment team. Similarly there was no distinction made public between girls who had ever had sex and those who had not. Study procedures and clinical tests however differed in private.

The principle of justice might also be applied to the rights of study participants to have access to the study findings (de Koning, personal communication). In the rural community a series of meetings were held with elders and leaders, church groups and school groups in order to disseminate study findings. In the urban area a much more proactive approach was taken within the community to disseminate findings and discuss their implications using participatory research techniques. (The process of local dissemination of findings is described further in Section 3.6)

Ethical Approval

Ethical approval for the research was given by the University of Port Harcourt Teaching Hospital Ethical Committee.

Access to Adolescents

Access to some groups or populations is controlled by 'gatekeepers' (Wax, 1980). Researchers need to secure permission from such people before approaching the study population. The position of the researcher is one of trust and permission may be withdrawn at any time.

> Access should not be thought of as a one off negotiation but an ongoing process in which the researchers right to be present is continually negotiated (Johnson 1975, in Lee and Renzetti 1990: 515).

Gatekeepers may also impose explicit conditions on the research process (Lee and Renzetti 1990). In the case of adolescents, in addition to civil and traditional authorities, 'gatekeepers' may also be parents, teachers and community leaders.

Because the research involved both adolescent sexual behaviour and clinical examinations for STI, priority was given to ensuring the support of gatekeepers in each community. Overall permission for the study was sought from civil authorities at the outset of the project. Initially the team approached the wife of the military governor and Chairperson of the Better Life Programme for Rural Women[17] of the Rivers State Commission for Women. It was under the auspices of this programme that the project sought permission from the chiefs and elders of the different communities. Permission was also granted by the State Ministries of Health and Education.

In the rural community an initial approach was made to the Paramount Ruler, the local Chiefs and to the Community Development Council. The town crier announced the arrival of the project and its aim to work with women of reproductive age. Further meetings were then held with the women's groups in each of the churches in K'Dere as it was suggested by key informants that this was the most effective way of communicating with large numbers of women. A rapid census was conducted at the start of activities when each compound was visited in turn. This provided an opportunity to introduce the objectives of the study to individual women who were present at the time of the visit. Meetings were also held with the Principals of each of the schools in the community.

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[17] The brainchild of Miryam Babangida and operating through the State Commissions for Women, equivalent of the Women's Ministry for Nigeria

In the urban community of Orogbum, initial permission was sought from the Paramount Ruler and First Class Chief of the Ikwerre ethnic group[18], followed by the Chief and Council of Orogbum community. A meeting was held with the women's association of Orogbum whose membership comprises most married women in the area. During this meeting the purpose of the urban study was explained and a video was shown outlining the process of the previous study in the rural area. There was a great deal of time devoted to questions and answers. Meetings were held with the principals and teachers of the schools in the area to seek their permission and to discuss space and logistical arrangements. Finally, as activities were about to commence, the Orogbum town crier announced the presence of the study team in the community.

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[18] The majority ethnic group in the Orogbum and Port Harcourt area.

3.3 Choice of Methods to Research Sexual Behaviour

As in other areas of research, the use of qualitative or quantitative techniques to study sexual behaviour has been debated by proponents of different research paradigms. The survey has been used widely for studies of sexual behaviour from the Kinsey studies in the United States (1948 and 1953) to the recent National Survey of Sexual Behaviour in Britain (1994) (Stanley 1995). The survey method has been criticised in general because it treats the individual, or the household, as the basic unit of analysis, abstract from social relations (Brannen 1988, in Lee and Renzetti, 1990). Feminist researchers criticise the survey method on several points both technical and epistemological: for using the household as the unit of analysis which masks gender relations or because individuals are divorced from social context (Finch 1991); that it is a male biased method (Graham 1983) because it objectifies women's experience and mutes women's self expression (Oakley 1981, in Lee and Renzetti 1990; Graham 1983). In the field of sexual behaviour research, Bleek (1987) strongly rejects survey research for handling delicate issues since embarrassing questions in a questionnaire produce unreliable answers.

Several feminist writers have, however, defended the use of the survey method. Graham (1983) cautions against creating a methodological ghetto for women and admits the worth of surveys in raising issues in scientific and political arenas:

> Surveys, precisely because they conform to the rules of the public domain, have played an important part in raising the consciousness of those within the scientific and political world (Graham 1983: 146).

Similarly Jayaratne (1983) defends the use of surveys to draw attention to issues of importance to women, and their scale. She suggests that rather than debating the

merits of different methods, making visible the process of research, and the relationships between the researcher and the researched should be central to any account of research. In her review of sex surveys, Stanley argues that although surveys have acquired 'fetish' status, it is too simplistic to argue that quantitative methods are necessarily masculinist and bad, and qualitative good.

> Such a binary way of thinking about methods in gendered terms I regard as far too simplistic, for it removes by fiat the epistemological, and also the ethical and political, difficulties which are to be found with every 'method', every form of social investigation, including those like interviewing which had achieved almost canonical status within feminist social science (Stanley 1995: 222).

She outlines how two sex surveys: Mass Observations "Little Kinsey" (1949) and the Hite studies (1987), have been used to discuss meaning and give voice to participants. The critique of the survey for sexual behaviour research and its application in this study, will be discussed further in Chapter Six.

In contrast, qualitative research is recognised for eliciting meanings, attitudes and norms within the cultural context in which they take place (Helizter-Allen *et al.* 1994) and have been supported for eliciting sensitive data (Bleek 1987). However, qualitative methods can also present problems for sexual behaviour research. The in-depth interview can be a stressful experience and written reports and transcripts can be more easily identified with the respondent, increasing the risk of sanctions (Lee and Renzetti 1990). Furthermore the interview is subject to the power relations between the researcher and researched and should not treated unproblematically.

In light of the debate and responding to different needs of research, many researchers try to steer a course through the two traditions (O' Connell Davidson and Lyder, 1996). Several researchers who have conducted research on sexual behaviour within

the public health arena suggest 'eclecticism' in choice of methods (Pickering 1988; Standing 1992; Dare and Cleland 1994). The key to methods to study sexual behaviour is that they are chosen and applied appropriately. Inappropriate choice can be a threat to obtaining valid data (Maxwell 1992). O'Connell Davidson and Layder (1996) emphasise the need for research which is both rigorous and reflexive, making use of the triangulation of data.

Decisions concerning the methodology for this study were driven primarily by the overall objective to determine the prevalence of STI in adolescent women in two communities in Rivers State. This objective required a large sample size of adolescent girls to be recruited within a relatively short space of time. Furthermore, the study was rooted in a positivist research paradigm which favoured the use of quantitative techniques. The survey was followed by qualitative research which was employed to clarify and validate (through triangulation) some of the findings. Attempts were made to make all the methods used "adolescent friendly". For example: a film about adolescents was shown to urban survey participants to introduce the subject of sex; recruitment for Focus Group Discussions relied on the 'friends' method to put participants at ease and vignettes were used as discussion-triggers (Pickering 1988). Furthermore a new technique for triggering discussions: the 'bag-of-tricks' game, was explored and developed during the course of the project (see section 3.6 below). How the study design and choice of methods influenced the trustworthiness and validity of data will be discussed in Chapter Five: Limitations of the Methodology.

The Research Team

A project team 'organogram' with responsibilities is given in Appendix 1. The leaders of the different activities were researchers either from the University of Port Harcourt or from the Liverpool School of Tropical Medicine. The author was responsible for selecting and training the "social" team who administered the structured sexual behaviour questionnaire, conducted focus group discussions and in-depth interviews

into sexual behaviour. The strategy adopted for both rural and urban settings was to have same sex interviewers.

In the rural study, interviewers were two female nurse-midwives (for female respondents) and two male schoolteachers (for male focus group discussions). The nurse-midwives seemed to be successful in interviewing older women. However, it was felt that the age difference did present a barrier to discussions with adolescents. Informal discussions with key informants confirmed that young people generally regard discussing sexual matters with elders to be taboo. Hence the strategy was changed for the subsequent urban study and a younger team of female 'peer' interviewers was recruited.

All interviewers received training in interviewing techniques. In addition to training in questionnaire administration, the interviewers in the rural area took part in a two-week training course in counselling skills and interviewing techniques conducted as part of a separate study[19]. For the urban study two teams comprising (i) female 'peer' interviewers and (ii) community fieldworkers were recruited from a local youth organisation. They took part in two specially designed week-long training programmes which included exercises in talking about sensitive issues, overcoming personal inhibitions about talking about sex, having a non-judgmental attitude, interview techniques, and questionnaire completion. Outlines of the training programmes are detailed in Appendix 3 for peer interviewers and in Appendix 4 for community fieldworkers.

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[19] Separate three-month study looking at counselling to promote partner notification for STI treatment conducted by G. Semrau, LSTM.

3.4 THE RURAL STUDY

Description of Study Setting

K'Dere was selected at the design stage of the project by the Principal Investigators. Accompanied by the Better Life Programme, they visited several villages in various Local Government Areas (LGA) in Rivers State. K'Dere was selected because of the reasonable road link to Port Harcourt and because the village demonstrated its support for the project by coming *en masse* to a community meeting to meet the principal investigators. K'Dere is situated in Gokana LGA, about 40 miles South East of Port Harcourt, the capital of Rivers State.

Figure 3-1: Map of Rivers State showing the locations of Port Harcourt and K'Dere

K'Dere has a population of approximately 10,000[20] who are members of the Ogoni ethnic group (total population ~500,000). The community is bounded on one side by another village, B'Dere[21]. The language spoken in K'Dere is Gokana, although English (and/or Pidgin) is also common (particularly amongst young people). The principal economic activities in the area are subsistence agriculture and fishing. However the most striking feature of the village is the oil-related economic activity: there are reported to be 52 oil wells on K'Dere land and there was a "Flow Station[22]" within the village residential boundary. However few residents of K'Dere benefited directly from this economic activity. There is much out-migration from K'Dere, primarily to fishing communities in Cameroon and to Port Harcourt.

The rural study was conducted between September 1992 and December 1993. The K'Dere Health Centre served as the focal point for project activities. The author was resident in one wing of the health centre staff quarters for the period of the study, during which time the project was allowed to use three rooms of the health centre. Two rooms were used for clinical interviews and examinations and one for the initial interview and treatment. After the survey these rooms were used for individual interviews and focus group discussions.

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[20] Figure projected from the 1964 Census.
[21] The author was advised on the village boundaries and sub-areas by members of the Community Development Council.
[22] Large industrial installation which collects the oil from the surrounding oil wells and pumps it to a central location.

Rural Survey

Rationale

The initial activity of the project was a cross sectional survey within K'Dere of all women of reproductive age, including post-menarchial adolescents. The aim of the survey was to determine the prevalence of STI, and to identify prevalence of symptoms associated with sexually transmitted diseases. In this initial survey, few questions were asked of social risk factors associated with sexually transmitted diseases. The survey involved a structured questionnaire comprising basic demographic data plus clinical details, followed by a pelvic examination and testing for STI. In the initial project design the adolescent girls were to be recruited first. However, on arrival in the community the author recommended that the older women be recruited first so that they were fully aware of the procedure before giving permission for the involvement of the younger women. This strategy was adopted by the research team. The Rural Questionnaire is included in Appendix 5.

Respondents

Survey respondents were post menarchial adolescent women and older women of reproductive age (20 years and above).

Sampling

The aim was to recruit the total population of fecund women; hence a sample size calculation was not required. However it was necessary to have an estimate of the total population so that response rates could be calculated. A national census was conducted in Nigeria in 1991, but at the time of the study these results were unavailable. The only national census figures generally regarded to be reliable were those projected from the 1964 census. However, K'Dere has much out-migration, in particular to satellite fishing communities in the Cameroon. Rather than rely on the 1964 census figure it was

decided to conduct a rapid census of all women of childbearing age currently resident in the village.

The rapid census was conducted by the author and two community nurse-midwives by going from compound to compound and asking a key informant there for the names and ages of all women of reproductive age who were normally resident in the compound. Members of the K'Dere Community Development Council acted as guides to the community. Many women did not know their age or the year they were born hence a local calendar of events was constructed with key informants in order to estimate women's ages[23]. The exercise served as an opportunity to meet some women, raise awareness of the study and answer any questions. Lists of women were compiled for each area of the community.

Development of the Rural Questionnaire

The Principal Investigators of the overall project developed the questionnaire. It was piloted in the University of Port Harcourt Teaching Hospital. Translation into the local language, Gokana, was carried out through a process of group discussion with the community nurse-midwives and checked by an outsider.

Interviewers

For the rural quantitative study the team were essentially clinical comprising two local community nurse-midwives to administer the initial part of the questionnaire and treatment plus two youth corps doctors, one male and one female[24], under the supervision of a consultant gynecologist (JI). Women were recruited from house to house visits to their homes by two male fieldworkers, who were schoolteachers and former members of the K'Dere Community Development Council. Both men were well respected and had an

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[23] The most significant event to distinguish between women below 20 years of age and those above was an oil blow-out, which occurred on village land in 1973. Most older informants remembered the gushing fount of oil, nearby homes being evacuated and a restriction on cooking fires and kerosene lanterns. At the time of the survey girls born after the blow-out were below 20 years of age.

[24] In Nigeria all new graduates are required to give one years voluntary community service, preferably in rural areas.

extensive knowledge of the community. All interviews were conducted in Gokana and a local nurse was present with the doctors who did not speak the language.

Process

The night before a clinic, the two male fieldworkers invited thirty women to come to the K'Dere Health Centre the following day. After giving their consent to participate, women were initially interviewed in a private room in the health centre by one of the nurse midwives who recorded basic demographic information and reproductive histories and took blood pressures. Women were then invited by one of the doctors to have a general and pelvic examination in a separate room in private. Women who did not attend the health centre on the appointed day were followed up by the author or one of the community nurse midwives to find out the reason for non-attendance.

Any woman found to have a STI was treated free of charge by the community nurse-midwife in the health centre, according to WHO guidelines for treatment of STI (WHO 1993a). The treatment of cases of syphilis required the presence of a doctor in case there was a reaction to penicillin. Partners were requested to come for counselling and treatment as part of a separate study[25].

In the second phase adolescent girls were recruited class by class from the community secondary school and the four primary schools. Once the school population of eligible adolescents had been invited, the field workers used the rapid census lists to identify out-of-school girls and invited them to come to the health centre, compound by compound. Adolescents who had not responded to the invitation to attend the health centre were followed up to determine their reason for non-attendance.

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[25] Study conducted by G. Semrau, Women's Health Group, LSTM.

Quality Assurance

A sub-sample of 11.2% (97) respondents was re-interviewed repeating some of the key questions. This is described in detail in the following section. Data were double entered in Epi-Info software. The two file versions were compared using the software and any discrepancies were checked against the questionnaire by hand and then re-entered.

Analysis

Data were double entered in Epi-Info and analysed using SPSS for Windows v6 and Epi-Info v6.02.

Rural Follow-up Interviews

Rationale

A sub-group of survey participants were re-interviewed as a quality control mechanism and to elicit further information about their sexual and reproductive histories.

Participants

A sub-sample of women of reproductive age who had taken part in the previous survey.

Sampling

Women invited for re-interview were those who tested positive for *N. gonorrhoea* and/or *C. trachomatis* together with a control group of randomly selected age-matched women[26].

Development of the Rural Risk Questionnaire

The rural survey instrument contained few questions on sexual behaviour. The questionnaire for the re-interviews therefore sought to elicit more information on possible risk factors for STI and more detail on reported abortions. Variables included number of sexual partners, frequency of sexual intercourse, occupation of partner and abortion history. The Rural Risk Questionnaire is included in Appendix 6.

Interviewers

The interviewers were two of the nurse-midwives who took part in the rural survey and who received additional training in interview techniques and counseling skills[27].

Process

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[26] This part of the study only focussed on risk factors for Gonorrhoea and Chlamydia. This was because the recommended STI diagnostic algorithms focus on risk factors for cervicitis, which is caused by these organisms.

[27] Training provided by G. Semrau, LSTM, as part of a separate study.

Women who were selected were approached by the field workers and asked if they would return to the health centre for a further in-depth interview. When the women came to the health centre, the purpose of the interview was explained again in more detail and women were asked to give consent. Individual interviews were conducted in a private room in the health centre and each lasted for about one hour.

Analysis

Questionnaires were double entered and analysed in Epi-Info.

Rural Focus Group Discussions

Rationale

As a triangulation exercise, focus group discussions (FGD) were conducted with young people, both male and female, to gather more in-depth information about perceptions of young people's sexual behaviour, and of pregnancy, abortion and STI.

Participants

A mixture of both school attending and out-of-school young people from the K'Dere community.

Sampling/Recruitment

Initially a knowledgeable field worker purposively selected girls and boys to take part in the FGD. However, it was found that in the initial groups, girls in particular felt uncomfortable to talk about sexual issues even though it was emphasised that the discussion would be general and no personal information would be requested. The author felt that the responses of participants reflected social norms rather than their perceptions of the behaviour of young people. The recruitment strategy was, therefore, altered and a key contact (a young man or woman) was approached and the purpose and content of the focus group discussion explained. They were then asked to find a small group of 6-10 friends who she/he thought might be comfortable to discuss these issues together. It was found that this 'friends' method produced groups that were much more relaxed and the author felt the information given was more reliable. Because of the recruitment strategy, not all FGD participants were strictly 'adolescents', however all were below the age of 23 years.

Process

The key contact was identified the day before the FGD. She/he was told the purpose of the FGD and the types of questions which would be covered. She/he was asked to

recruit a group of friends and explain to each of them what the FGD would cover. The group met the next day in a private room in the health centre. The health centre was found to be well suited to conducting focus group discussion since it was on the edge of the community and largely deserted in the afternoons after the morning clinics. Consent was sought from participants before the group discussion was started. The author generally conducted the discussion in English/Pidgin with the fieldworker acting as observer. However, if the group seemed uncomfortable, or if several members were reluctant to speak, the discussion was conducted in Gokana (with the fieldworker acting as facilitator). After obtaining permission from the participants all FGD were recorded. A topic guide was used to maintain the broad structure of the Focus Group Discussions, which lasted between one and one and a half hours. (Topic guides used in both the Rural and Urban Focus Group Discussions are included in Appendix 10).

Attitudes towards schoolgirl pregnancy were sought using a 'vignette' as a discussion starter (a method described by Pickering (1988) to initiate discussions around sexual behaviour). The story of Lekie (a Gokana name) was related to the story outlined in the film "Consequences" (DSR 1987). Lekie becomes pregnant while she is at school. Although her boyfriend offers to support her to have an abortion, she decides to keep the baby. When the headmaster of the school discovers that she is pregnant, both Lekie and her boyfriend are expelled from school. Topics discussed after the vignette included: views on responsibility and whether both of them should have been expelled: whether they should marry; and why Lekie did not want an abortion. Other topics then followed which included attitudes towards sexual relationships among young people in K'Dere and knowledge of STI.

Analysis

All tapes were transcribed and translated if necessary. Transcripts were analysed by the author using categories derived from the interview topic guide. Additional categories were added as they arose from the data.

Rural Individual In-depth Interviews

Rationale

In-depth individual interviews were conducted with adolescent women who tested positive for STI to gain further information about their sexual history and their own and their partners' response to the positive diagnosis of STI.

Participants

Adolescent girls who tested positive for STI in the Rural Survey.

Sampling/Recruitment

The author attempted to follow up and re-interview adolescent girls who tested positive for STI. 10 girls were located in the community in the time available.

Process

The adolescent girl was contacted by a fieldworker and told the purpose of the interview. She was invited to come at a mutually convenient time to a private room in the health centre. One of the trained female fieldworkers was present during the interview to translate questions and answers if communication in Pidgin proved difficult. The discussion lasted about 40 minutes and was recorded (with permission).

Analysis

All tapes were transcribed and translated if necessary. Transcripts were analysed by the author using categories derived from the interview topic guide. Additional categories were added as they arose from the data.

3.5 THE URBAN STUDY

Description of study setting

The urban study took place between January 1994 and March 1995 in Orogbum, Port Harcourt. Orogbum was selected because it represented a peri-urban community, had a Comprehensive Health Centre and had very good road links to both the project office and the University of Port Harcourt Teaching Hospital laboratory, where all samples were processed.

Orogbum is situated within Port Harcourt, the capital of Rivers State. Port Harcourt is the centre of the oil industry for South East Nigeria, and has experienced rapid urbanisation and in-migration. The population of Orogbum was approximately 23,000[28]. A member of the Orogbum Women's Association showed the boundaries of the community to the project team. The Ikwerre ethnic group are indigenous to the community but many ethnic groups from all over Nigeria are also represented. The indigenous language is Ikwerre, but English (and/or Pidgin) is widely used.

The school-based survey was conducted in the five secondary schools in and around the region, using rooms set aside in the school to conduct interviews and clinical examinations. For the community-based survey, rooms in the Orogbum Comprehensive Health Centre were used.

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[28] Figure from the Orogbum Health Centre census of its catchment area

Urban Surveys

Rationale

The survey was conducted in two parts. The first objective was to measure the prevalence of STI amongst urban schoolgirls. It was decided at the outset that it would be difficult to motivate enough out-of-school girls to come to the health centre for a clinical examination, thereby making an estimate of the prevalence of STI in out-of-school girls subject to bias. Therefore a follow on community-based survey was designed with the aim of establishing the school attendance and sexual activity rate (as a proxy for STI prevalence) amongst out-of-school girls.

The initial phase was based in the five secondary schools in and around the Orogbum community. Only the three senior classes, SS1, SS2 and SS3, were included because they contained the majority of girls who had reached menarche and were aged 14-19 years[29]. Sampling in lower school years would have meant excluding large numbers of pre-menarchial girls.

The second-phase of the study, based in the community, was conducted to determine school attendance and to gain an estimate of sexual activity rate of out-of-school girls. For the community-based survey, eligible girls aged 14-19 years were recruited in their homes using random cluster sampling. They were invited to the health centre for a structured interview using the same structured questionnaire used in schools. Girls who gave their consent were also clinically examined and tested for STI.

The survey of out-of-school girls was due to commence in August 1994, at the time of a national oil-workers' strike and under the threat of a general strike. Severe fuel shortages made it extremely difficult to travel within Port Harcourt. All non-essential foreign

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[29] There are six years in secondary school: three junior years (JS1, JS2 and JS3) and three senior years (SS1, SS2 and SS3).

nationals had been recommended to leave the country and representatives of the different Embassies in Port Harcourt had drawn up lists of nationals for possible evacuation. There was a strong possibility that fieldwork might be halted at any stage. It was decided that an important criterion in the execution of this stage of the survey should be that it could be completed in the shortest time possible. The survey design was revised to start simultaneously in six sites in the community. It was calculated that two weeks work would provide an estimate of school attendance. If conditions allowed, a further two weeks would allow an estimate of sexual activity amongst out-of-school girls in the different age groups. The revised design required a much-enlarged team of field workers and careful logistical planning.

The details of the two parts of the urban survey are described separately.

Urban Schools Survey

Participants

Girls aged 14-19 years who had reached menarche and were currently attending school.

Sampling Procedure

Sample size calculations were based on the need to estimate the prevalence of STI to have 95% certainty of getting an estimate which is within 25% of the true value. Relatively lower STI prevalence rates mean that sample size requirements are much larger for studies among adolescents than for those among very high-risk groups, such as commercial sex workers. The sample size calculation was based on the following assumptions:

- STI of 7.5% (i.e. 10% higher in the urban area as the rate found in the rural area of 6.8% in this age group).
- Design effect of 1.5 assuming small clustering of STD prevalence by school class.
- Non-compliance of 5%

It was calculated that a sample of 1173 girls would be required[30].

Stratified random cluster sampling was used to select classes from the three senior years (SS1, SS2, SS3) which have the age range of desired participants (14-19 years). The total number of girls sampled in each year was proportional to total number of girls in that year over all the five schools.

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[30] Using the EPITABLE option of EPI INFO v6.02. Calculated by N. Dollimore and S. White (LSTM).

In reality sampling in schools proved to be more difficult than predicted. A complete list of all schools in Port Harcourt did not exist; some of the small, privately run schools could not operate officially because they had not paid registration fees to the relevant bodies. Instead, walking through the community and asking local people identified five schools in and around the Orogbum area. Three large state-run schools (two for girls and one mixed) and two smaller privately owned schools (both mixed) were included.

The sampling strategy was further complicated because two larger schools did not hold complete lists of classes or pupils. However, through the support of teachers and class prefects, lists used for sampling were generated *de novo*. Despite such lists, an accurate sampling frame was difficult to draw up for the larger classes (up to 100 girls) because students were regularly excluded from school for non-payment of fees and there were significant daily absentee rates, frequent reorganisation of classes in response to staff shortages, and invariably a small percentage of students who had been "seen" on the premises but could not be located. As a result the class lists were taken on the day that girls were recruited to the study.

Interviewers

The team of specially trained peer interviewers (as described in Appendix 3) administered the questionnaire.

Process

Initially the objectives and stages of the study were explained to the class by the author. In order to introduce the topic of sex, the film "Consequences" (DSR 1987) was shown. Set in Zimbabwe, this tells the story of a girl who becomes pregnant and has to drop out of school and the consequences for her and the father of the child. The film acted as a trigger to stimulate a class discussion about issues around sex, pregnancy, abortion and STI. Issues discussed included its relevance to young people in Port Harcourt; the identification of the consequences of sex at an early age portrayed by the film; and whether the group agreed with the choices made and their

outcomes. The discussion focussed on adolescent sex at a general rather than personal level. After the discussion, girls were invited to have an individual confidential interview with a peer interviewer and offered a chance to discuss personal issues.

Interviews were conducted in private in a room set aside by the school. Although they followed the schedule of the structured questionnaire, the interview was interactive and girls were encouraged to ask questions about their sexual health. If the peer interviewers could not answer a question, it was referred immediately to the author who was present at all times. Each interview lasted about 20-25 minutes.

All girls who were interviewed were given an appointment to meet with the clinical team on the following or subsequent day. The clinical team used a second private room set aside by the school. This clinical session included anthropometric measurements, urinalysis, haemoglobin estimation and a discussion of STI/reproductive tract symptoms. Finally a general physical examination was carried out, including a pelvic examination to test for STI if the girl was sexually active. Microbiological samples were transported to the University of Port Harcourt Teaching Hospital for testing.

A few days later all participants were recalled by a team of volunteer nurses who provided personal advice on sexual health issues for each girl in private. Any infections were treated and girls with severe anaemia or other problems were referred to the University of Port Harcourt Teaching Hospital.

Development of the Urban Social Questionnaire

The social questionnaire was developed from the findings of the social research conducted in the rural community. In comparison to the rural questionnaire the urban instrument included more detailed demographic information in addition to several variables related to sexual behaviour, sexual partners, first sexual encounter, history of pregnancy and abortion and contraceptive use. The Urban Social Questionnaire is included in Appendix 7.

The draft social questionnaire was pilot tested with young women at the family planning clinic in the University of Port Harcourt Teaching Hospital and discussed at length with the group of peer interviewers. The pre-test showed that some questions had to be re-phrased or omitted. For example, a question about ethnic origin proved to be extremely unpopular because at the time of the pilot test there were several ethnic clashes within Rivers State and an air of suspicion between different groups. This question was therefore omitted. The questionnaire was administered in English/Pidgin. The phrasing of each question was agreed during group work with the peer interviewers.

The Clinical Survey Questionnaire was refined for the urban study and is given in Appendix 8, together with the Urban Tracer Card (Appendix 9) which was used to record microbiological results.

Urban Community Survey

Participants

Eligible girls were 14-19 years old at the time of recruitment and not currently attending school (in 1994). However, details of all girls aged 12-25 years were recorded for each compound to gain an estimate of the school attendance rate and ensure that the target group was covered.

Interviewers

The same peer interviewers who worked in the schools were retained to administer the in-depth social questionnaire. An additional team of community fieldworkers were trained to conduct the cluster sampling and recruit eligible girls in their homes (as described in Appendix 4.)

Sampling Procedure

The total population of Orogbum was difficult to determine. Port Harcourt has undergone rapid expansion in recent years and the only available census figures (from 1964) were not thought to be appropriate. Instead the population was calculated using data from the catchment area for Orogbum Health Centre collected during the national health registration exercise, coupled with the DHS demographic profile of Nigeria.

Various strategies for accessing out-of-school youth were considered, for example, using community youth groups in the area. However, Orogbum "youth" associations tended to comprise older age groups with the cut off for entry set at age less than 60 years! Additionally, most groups require financial contributions from members, thereby ruling out many adolescents. The team decided that a house-to-house survey would provide the most complete data.

A random cluster sample survey was designed based on EPI methodology. However the sampling frame was difficult to define because an accurate map could not be found, and houses/compounds in the area were not systematically numbered, if at all. Therefore a rudimentary road map was drawn from driving around the area which could be compared with the few published maps which were available. A more detailed map was constructed[31] by recruiting young men and women from the "War Against Injustice" (WAI) Brigade for a day to pace the area in order to fill in the gaps on the road map. This exercise provided information on pathways, non-tarred roads, location of shops and pharmacies. The completed map was then reproduced on squared paper and 36 cluster starting points were selected randomly using grid references. The Orogbum Community Map is shown in Figure 3-2 below.

In order not to rely on the map-reading skills of the field team, an independent outsider[32] was requested to identify and describe each starting point. Accurate descriptions of starting point could then given to field workers, for examples:

A3: Moving along Ogbunabali Street towards Eastern By-pass, find the shop on the right called 'Elegance and Style Resanified'. Take the alley between the shop and the drive to find a green house with the number '54

C9: Go down Ogbonda Street towards the marsh. Find a white house with a nearby telegraph pole painted with the census number D/84/2/5084

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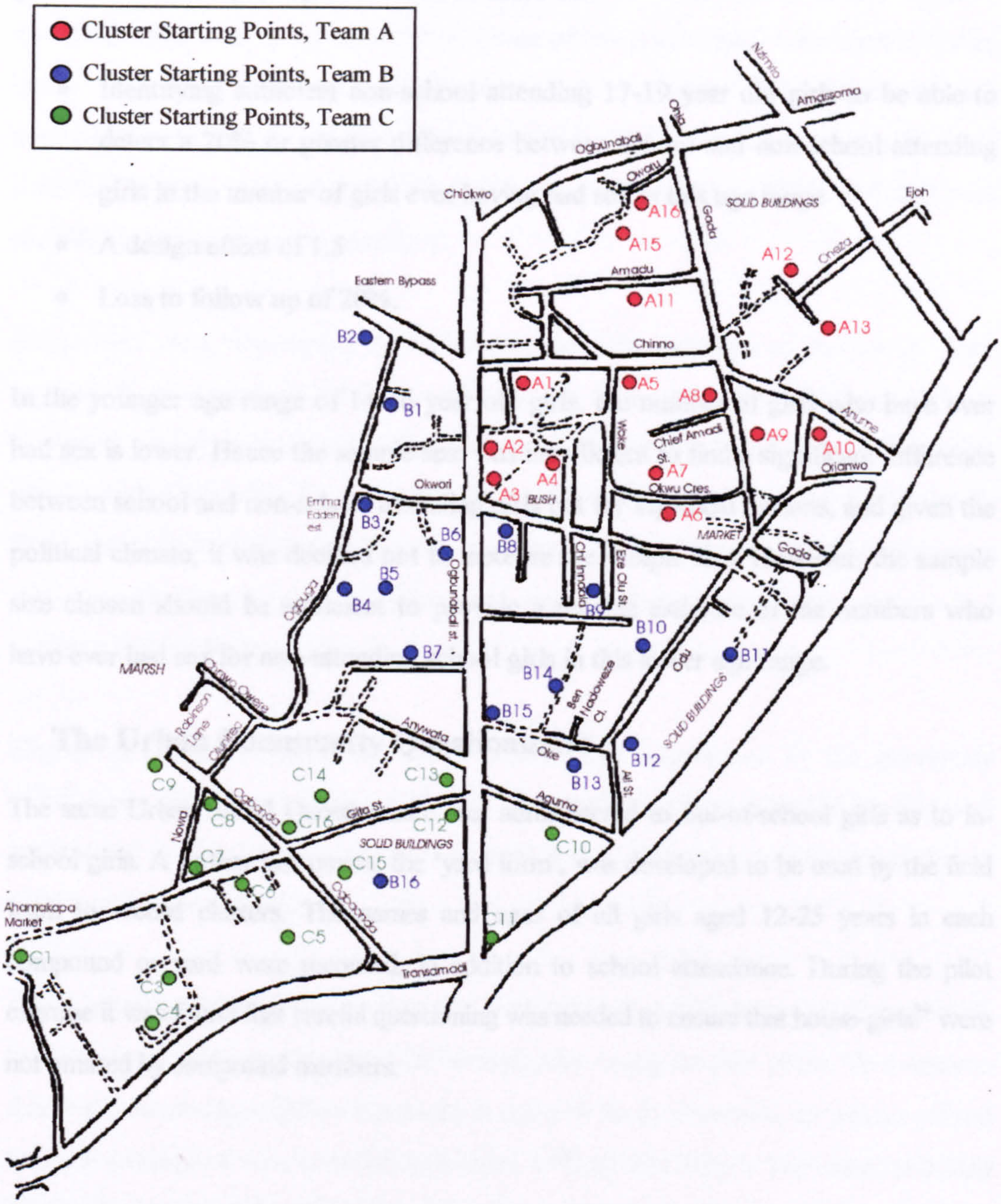
[31] Mapping exercise led by N. Perrin
[32] N. Perrin

Figure 3-2: Orogbum Community Survey Map



Sample Size Calculation

It was calculated that a minimum of 9 study girls per cluster should be recruited to give a total of 432 participants[33]. This is based on:

- Identifying sufficient non-school attending 17-19 year old girls to be able to detect a 20% or greater difference between school and non-school attending girls in the number of girls ever having had sex in this age range
- A design effect of 1.5
- Loss to follow up of 20%.

In the younger age range of 14-16 year old girls, the number of girls who have ever had sex is lower. Hence the sample size was insufficient to find a significant difference between school and non-school attending girls but for logistical reasons, and given the political climate, it was decided not to increase the sample size. However, the sample size chosen should be sufficient to provide a reliable estimate of the numbers who have ever had sex for non-attending school girls in this lower age range.

The Urban Community Questionnaire

The same Urban Social Questionnaire was administered to out-of-school girls as to in-school girls. A further instrument, the 'yard form', was developed to be used by the field team to record clusters. The names and ages of all girls aged 12-25 years in each compound or yard were recorded, in addition to school attendance. During the pilot exercise it was found that careful questioning was needed to ensure that house-girls[34] were not omitted by compound members.

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[33] Calculated by N. Dollimore
[34] Young women employed to work as domestic servants

Process

In order to limit the geographical area fieldworkers had to cover on foot, the cluster starting points were divided into three areas. Each area was covered by two teams of two fieldworkers and a supervisor. Each team of two commenced at the cluster starting point. They recorded details of all young women (ages 12-25 years) in each compound; recruiting to the study any girl aged 14-19 years who was currently out of school. The team then moved to the next compound until nine eligible girls had been recruited to the study, making a cluster.

Supervisors were responsible for monitoring the daily activities of the teams. Their supervision of clusters varied from accompanying teams while they were registering a cluster, to verifying the cluster independently at a later date. Teams were kept roughly in step with each other by daily meetings and weekly targets for the whole group. Teams conducted follow-up visits to compounds to check the registration of women who were absent at the time of registration, and to follow-up eligible women who had not attended the health centre.

Eligible girls who attended the health centre were interviewed by the previously trained peer interviewers. Those who did not attend the centre were followed up and interviewed in their home by the peer interviewers (if they gave consent and a private place could be identified).

Asking about and listing all the girls in the yard, but then only inviting a small proportion to come to the health centre, proved to be unpopular during the pilot phase. To overcome this, and to encourage eligible adolescents to come to the health centre, the service offered to study participants was extended and called a "Drop-In Centre". The centre provided information in the form of posters and videos, and simple tests were offered to all attendees (blood pressure and urinalysis). In addition there was an opportunity to have a consultation with one of the youth corps doctors involved in the project. All young

women in each compound visited were given an invitation card detailing the opening times and location.

Quality Assurance Mechanisms: Urban Surveys

Amongst the different teams (peer interviewers, clinicians, volunteer nurses) a code of conduct was discussed. This emphasised the importance of establishing rapport and having a non-judgmental attitude. In training sessions personal attitudes and responses to different situations were examined. In implementation terms this meant that a great deal of time was devoted to talking to girls individually. This sometimes resulted in long working days, and required the continued motivation of the team.

In classes at least an hour was devoted to introducing the study and the topic and discussing the film 'Consequences' with respondents. This allowed an opportunity for the team to introduce language about sex and "give permission" to the girls to talk openly.

Weekly update sessions were held with the peer interviewers to review procedures and interview techniques.

No re-interviews were carried out in the urban study. The author initially observed some part of 10% of all interviews. However it was found that the presence of a third person changed the dynamics of the interview and altered perceptions of rapport. The truthfulness of subsequent responses was called into doubt. Instead, a system of debriefing the peer interviewers immediately after ~10% of interviews was adopted in order to test their recall and discuss responses.

Key questions about sexual activity were repeated during the clinical investigation. In this way the same questions were repeated in a different setting by a different person (who was also a clinician). The consistency of a girl's responses could be ascertained.

In an attempt to overcome the interviewer bias, a self-administered questionnaire was piloted with a sub-set of the girls. However girls found the questionnaire difficult to understand, and to be used formally required further development and piloting. This was not possible during the urban survey. However, it was developed further into a pictorial questionnaire during the dissemination phase of the project.

Data were double entered in Epi-Info; the software listed differences between the two file versions, and any discrepancies were checked against the original form by hand.

Analysis: Urban Surveys

Data were double entered in EPI INFO and analysed using SPSS for Windows v6 and EPI INFO v6.02.

Urban Focus Group Discussions

Rationale

Although the structured questionnaire quantified the different types of methods used by young women for the prevention of pregnancy it did not provide information about how and when each of the methods are used, or where young women seek advice for sexual health issues. Focus group discussions were held to explore these issues in more detail.

Participants

School attending adolescent girls aged 14-19 years from different years in the schools which took part in the survey.

Sampling

Girls were purposively sampled from the three different senior years (SS1, SS2 and SS3). A total of six Focus Group Discussions were conducted. Following on from the success of the 'friends' method employed in the rural area, a key contact was asked to recruit a group of 6-10 friends from her year who would not mind speaking in front of each other about issues around sexual health.

Process

The key contact was identified the day before the FGD. She was told the purpose of the FGD and the types of questions which would be covered. She was asked to recruit a group of friends and explain to each of them what the FGD would cover. The group met the next day in a private room provided by the school. Consent was sought from participants before the group discussion was started. Another member of the research team (CIW) conducted the discussion and the author acted as observer. FGD were conducted in English or Pidgin. All FGD were recorded, following permission from

the participants. A topic guide was used to maintain the broad structure of the Focus Group Discussions; the topic guide is included in Appendix 10.

Analysis

CIW or the author transcribed all tapes. Transcripts were analysed by CIW and the author using categories derived from the interview topic guide. Additional categories were added as they arose.

Mystery Client Exercise

Rationale

It was clear from the responses of adolescent girls that chemists and drug sellers are an important source both of information and for the supply of methods used to prevent pregnancy. In order to triangulate these findings with information from chemists about their practice, the author attempted to conduct an in-depth interview with the owner of a chemist shop. Despite assurances that information would be confidential, the respondent was adamant that drugs were only sold with a doctor's prescription. It was clear from previous casual observation of the same shop that this was not true. It was felt that it would be difficult to investigate chemist practice in an interview setting; hence a brief mystery client exercise was planned.

The mystery client exercise is an example of covert research which overcomes the interviewer effect in collecting data. Normally a member of the research team or anonymous volunteer acts as a patient or client to observe routine situations. It has been used in South Africa to look at the quality and type of services offered to adolescents who seek condoms (Abdool Karim *et al.* 1992), in Ghana to evaluate family planning counselling training from the user perspective (Huntington *et al.* 1990), and in Nigeria to look at the quality of family planning services offered to adolescents (Olowu 1998). The method has been criticised on ethical grounds because it does not seek the informed consent of participants before the research is conducted (Lee and Renzetti 1990). It is also a method that can be perceived as threatening to those being investigated, which might preclude their co-operation in service improvements at a later date (deKoning, personal communication).

Sampling

Six chemist shops within the Orogbum area were randomly selected. The "mystery client" spoke to the person serving behind the counter.

Process

One of the peer interviewers from the urban study acted as the 'mystery client'. In each chemist shop she visited she complained that her period was late, asked what she might take and how she might prevent pregnancy in future. On leaving the shop she wrote brief notes about the responses given to her. She was accompanied by a friend who did not enter the shops with her. She visited all six shops in one morning. At the end of the morning she met with the author to discuss her findings and produce more detailed notes.

Analysis

Findings were discussed in detail with the peer interviewer and a summary of responses written up.

3.6 DISSEMINATION OF FINDINGS

Rural Community

In the rural area a straightforward process of local dissemination of findings was adopted. A series of meetings were held with women's groups in all the churches in the community and with the chiefs and elders of the community. During the meetings the team leaders presented the main findings of the study. There was an opportunity at the end of the meeting to answer questions and discuss the implications of the research.

Urban Community

The author believes that there is an ethical responsibility to feed back study findings to those who participate in research in such a way that they can be understood by participants, and in a forum which stimulates an interactive discussion. Therefore in the urban area additional funds were sought to conduct a comprehensive dissemination process[35]. The aim of the exercise was to disseminate the key findings of the previous survey as widely as possible to the adolescent participants and community members of Orogbum. Involving the participants also gave an opportunity to validate research findings, and this is the reason that the methodology is presented here. Furthermore, different initiatives to provide sexual and reproductive health information or services in Nigeria have been met with resistance from parents and other community members[36]. It was hoped that the dissemination exercise might engender community and adolescent involvement in the development of practical strategies to improve adolescent sexual health in Orogbum.

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[35] The "Dissemination Project was funded by DFID. Principal Investigators were Julia Kemp, Nicola Dollimore and N'Gozi Odu.

[36] Personal communication with two NGOs running adolescent sexual health initiatives in Ibadan and Benin City.

The aim was to disseminate information in appropriate ways, using participatory techniques. As such the exercise also provided an opportunity to further develop adolescent-focused methods and tools which could be applied in any future initiatives in the area.

Participants

Although the previous research only focused on girls, both girls and boys were involved in the dissemination activities. Participants in dissemination activities were adolescents in the same years in the five schools which had participated in the previous study; out-of-school youth; 'gatekeepers' including parents, teachers, and community members; and health workers and Non-Governmental Organisations (NGO) representatives working with adolescents.

Process

The day-to-day implementation of the project was carried out by two doctors involved in the previous research (SB and CIW). Permission to conduct the dissemination activities were sought from the Commissioners of the Ministries of Health and Education and preliminary meetings held with heads of schools, the local representative of the National Council for Women Societies, the Chief and women's leaders of Orogbum community and the male and female wings of the Orogbum youth societies.

Over a period of six months a series of meetings were held with different groups. Meetings were held in schools with groups of adolescents, teachers and parents (through the PTA associations). Out-of-school youth were approached through youth groups, youth leaders and cultural groups. Community groups comprising parent and community leaders were accessed through the men's and women's community associations. Meetings were conducted in pidgin or Ikwerre and held in the Chiefs *Obiri* (meeting hall). A meeting for health providers and representatives of local non-

governmental organisations (NGOs) engaged in work with adolescents was held at the Ministry of Health.

A final public meeting was held in Orogbum community to conclude the dissemination activities and included adolescents, representatives of the Commissioners of Health and Education, local NGOs, Chiefs and leaders of Orogbum community, teachers and journalists from three local newspapers. Pamphlets summarising the project's activities were distributed.

Methods

Emphasis was placed on visual and interactive techniques to stimulate discussions. A variety of methods were used with different groups.

Pictures and cartoons as discussion triggers: Posters were made to present the survey results. For example one poster showed what percentage of adolescent girls aged 14-16 years had ever had sex by showing ten figures with the proportion who had sex painted in blue, the others in red. The poster was used to discuss perceptions of the group of the numbers of girls who had ever had sex and whether or not they were surprised at the findings. Another poster depicted a cartoon of adolescent pastimes which was used to trigger a discussion amongst gatekeepers about influences on adolescent sexual behaviour.

"Bag of tricks" game: A game was developed to encourage adolescents to talk freely about all the different methods they used to prevent pregnancy. All the different methods cited in the survey were purchased and placed in a big bag. Group members were asked to name methods of prevention of pregnancy. Invariably formal methods of contraception, such as condoms or pills, were cited first. They were produced from the bag as they were mentioned. However, once formal methods were exhausted it was apparent that there were many methods remaining in the bag. In a relaxed and non-threatening atmosphere other methods could be produced and discussed.

***Voting exercises*:** Voting using bottle tops was used to check some of the findings or to test opinions through agree/disagree statements. For example adolescent girls were asked to vote on the method of prevention of pregnancy thought to be most commonly used by adolescents. Similarly parents and teachers were asked to agree or disagree with the suggestion that FLE should be more widely taught in schools.

Drama: A drama about the consequences of unprotected sex was written by a group of adolescents from one of the participating schools and presented to the large community meeting held to mark the end of the dissemination activities.

***Adolescent-focused tools for evaluation*:** The dissemination phase was used to further develop the self-administered questionnaire piloted in the urban schools survey. A series of pictures were developed to represent different options in response to questions about sexual behaviour. The pictures were then incorporated into a booklet "secret questionnaire" format which could be used to monitor behaviour changes for future initiatives.

Analysis

One the difficulties of using participatory techniques in research is in recording and analysing data. In projects which are based on Participatory Learning and Action (PLA) design, implementation and evaluation of the project is participatory including all involved. This project does not claim to be truly 'participatory' in that sense because it had a clear aim to disseminate findings of previous research. In order to keep a record of the dissemination process, therefore, notes were kept of the outcomes of the different meetings and exercises. Outcomes of the dissemination process are presented in the results section where they relate to findings from the original study.

CHAPTER 4 - RESULTS

4.1 INTRODUCTION

This chapter describes the findings from the social study. Other studies were conducted under the wider project. These include a cross sectional survey of the prevalence of STI amongst older women of reproductive age (>20 years) in the rural community, and the clinical signs of reproductive morbidity amongst adolescents in both communities. Findings from these studies have been described in two publications, which have been included as appendices for reference: Brabin *et al.* 1995 and Ikimalo *et al.* 1999 (Appendix 12 and Appendix 13).

The aims of the social study were to assess the prevalence of sexually transmitted infections, pregnancy and abortion in adolescent girls; and to describe the sexual behaviour, risk of STI, pregnancy and abortion amongst adolescent girls. The research took place in two consecutive stages in two communities: one rural and one urban. The findings for each stage are described separately under the following topic headings: demographic characteristics of respondents; sexual relationships; sexually transmitted infections; prevention of pregnancy; history of pregnancy and abortion. Within each topic quantitative findings are described first, followed by the qualitative information gained in focus group discussions, in-depth interviews and participatory approaches.

The study is based on investigations in two communities, one rural and one urban in Rivers State, but the findings are not presented as a formal rural-urban comparison. This is for several reasons:

- Sampling of the communities was purposive (using criteria of accessibility and permission) rather than using a random sampling strategy.
- The study design evolved over time with the urban study benefiting from the findings of the rural study. Sampling strategies, survey instruments and qualitative research were different in each community and therefore any comparison of findings can only be tentative.

- The external validity of the urban survey is more difficult to assess than the rural survey because of the two-stage sampling strategy and the difficulty of estimating response rates due to the lack of an accurate sampling frame.

These issues are discussed further in Section 5.2 Limitations of the Methodology.

The rural study represents a total population; therefore figures given are population figures. For the urban results 95% confidence intervals are given (in brackets) for the main findings.

4.2 RURAL STUDY

Demographic Characteristics of Respondents

The house-to-house visits established a population of 439 eligible adolescents (post-menarche, under the age of 20 years) of whom 93.4% attended for interview in the rural survey. (The Rural Survey also included older women of reproductive age, however the findings from older women are excluded (as discussed in Chapter One)).

Table 4-1: Summary of Respondents, Rural Survey

	Total population	Attended interview	% of population
Women >20 years	520	458	88.0
Adolescents	439	410	93.4

Few adolescent girls (11.2%) were married. School attendance was high with 60.2% of adolescents currently in school and 88.0% who had ever attended school.

For the Rural Re-Interviews, a sub-sample of the initial respondents were interviewed for a second time. The sub-sample included all women who tested positive for Gonorrhoea or Chlamydia and randomly selected age matched controls.

Table 4-2: Summary of Respondents, Rural Re-Interview

	Total Rural Survey participants	Number re-interviewed		% of initial participants
		STI +ve	STI -ve	
Women >20 years	458	27	26	11.6
Adolescents	410	22	21	10.5

Rural focus group discussions were conducted with both girls and boys from the community using the "friends" method. Strict age criteria were not applied to focus group discussions since selection of respondents was though a Key Contact (an adolescent) who chose 6-10 friends to share the discussion. The age range of respondents was between 14-23 years. Six focus group discussions were conducted with girls and five with boys. Boys were included to provide a gender comparison of knowledge and attitudes towards STI, pregnancy and abortion amongst adolescents.

Table 4-3: Summary of Respondents, Rural Focus Group Discussions (FGD)

FGD Code	Sex	Age (years)	Number of participants
B1	male	16-19	7
B2	male	16-18	6
B3	male	16-22	9
B4	male	14-23	10
B5	male	18-22	5
G1	female	19-22	4
G2	female	17-22	8
G3	female	17-21	10
G4	female	16-20	8
G5	female	17-22	8
G6	female	14-19	10

Finally, ten in-depth interviews were conducted with adolescent women who tested positive for STI in the rural survey. Six of the ten were unmarried, and four married (two of whom had been unmarried at the time of the rural survey). Seven of the girls had attended school but said that they had had to stop because of lack of money. One girl was currently in school. The other two had never attended school.

Sexual Relationships

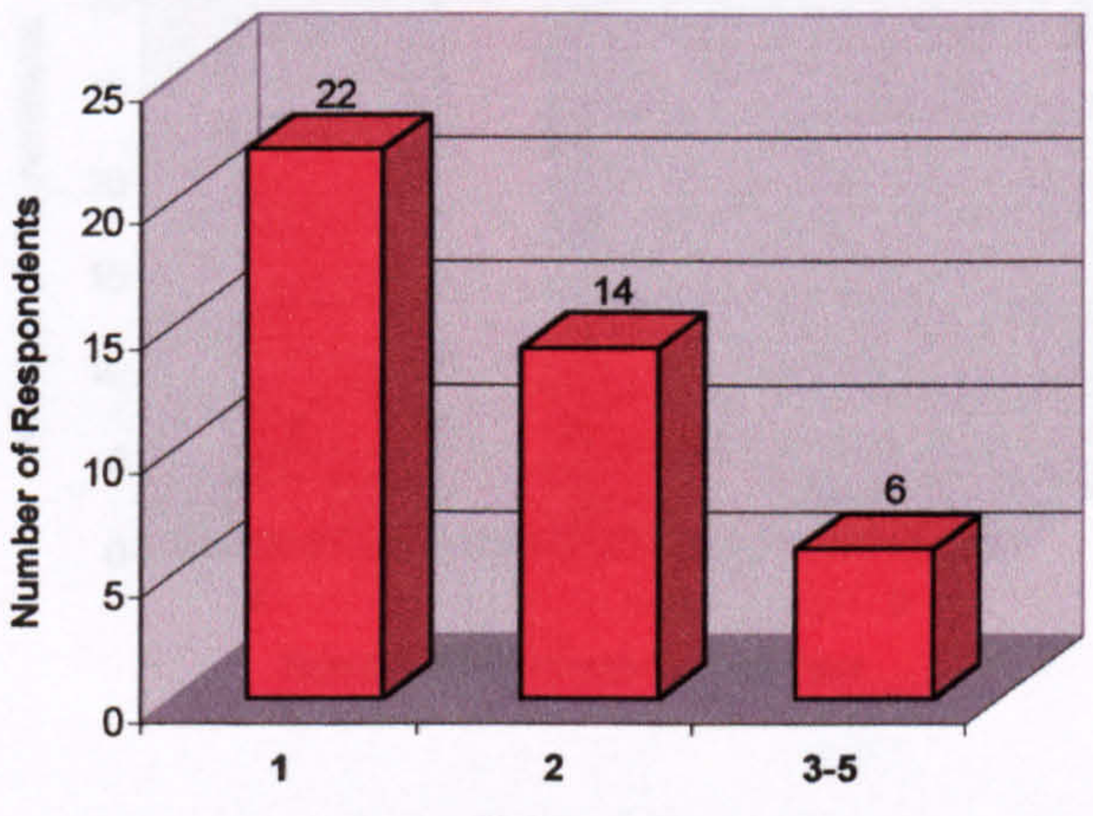
Previous Sexual History

In the Rural Survey, 62.0% of the 410 adolescent girls said that they had experienced sexual intercourse. The proportion of girls who had had sexual intercourse increased with age: 43.6% of those under 17 years (n=204) compared to 80.1% of 17-19 years (n=206).

In the Rural Re-interviews, a sub-set of 43 sexually active girls was re-interviewed to ask more details about their sexual history. Most girls, 83.7% (72.5, 94.7), said that their first sexual encounter was between the ages of 15 and 19 years, with 14.0% between 10-14 years. No girl reported having sexual relations before the onset of menarche. More than half of this subset of girls had only ever had sex with one partner. The total numbers of partners reported by the girls are given below:

Figure 4-1: Lifetime partners, reported by a subset of sexually active girls

(n=43, 1 missing value)



Partner Characteristics

In the sub-set of 43 sexually active adolescents most (79.1% CI 67.0, 91.2) had only had one partner in the last year. Most of their partners (69.8%) were described as boyfriends and most were approximately the same age as the girls (83.7%). Few partners drank (18.6%) or smoked (14.0%). 39.5% of women were sure that their partners had other sexual partners, 16.3% said that their partners did not, and 39.5% did not know. 72.1% of partners travelled away from K'Dere frequently. The details of the number and characteristics of partners are given in the figures below:

Figure 4-2: Partners in the last year, reported by subset of sexually active girls

(n=43, 0 missing values)

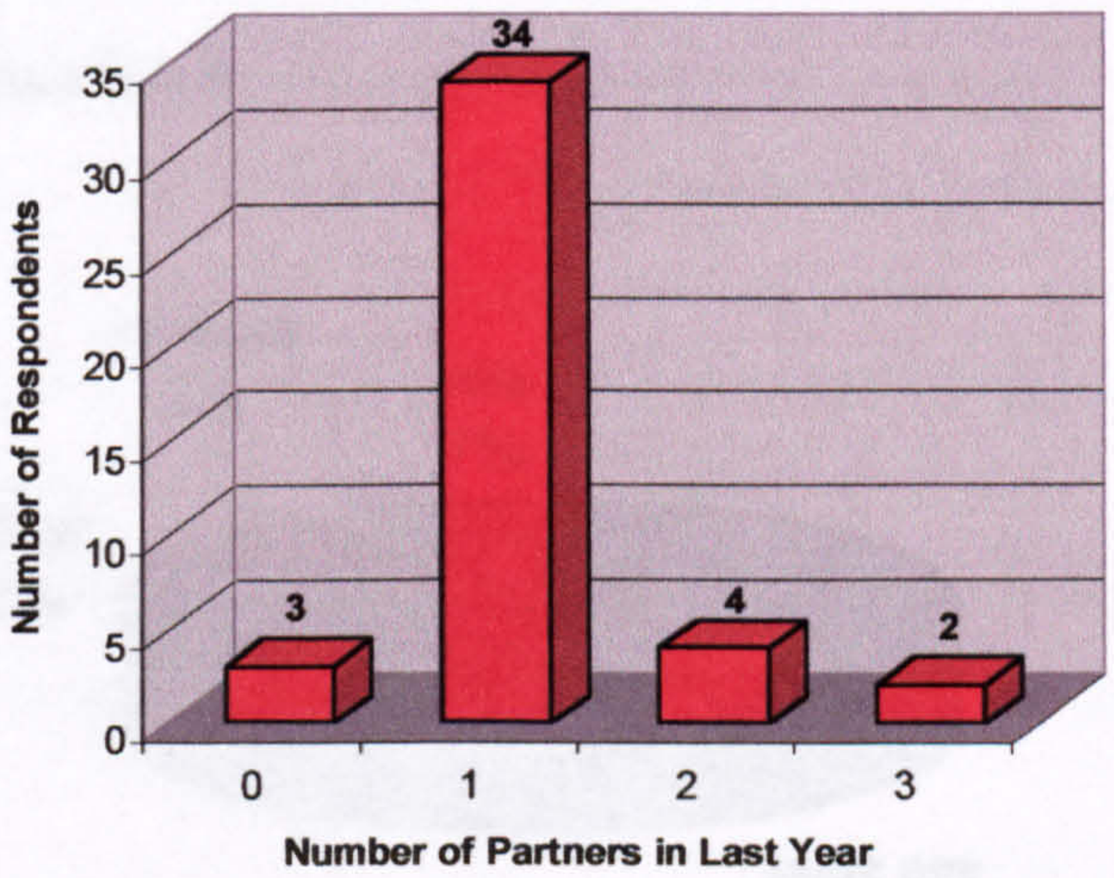


Figure 4-3: Relationship to main partner for a subset of sexually active girls

(n=43, 2 missing values (n/a))

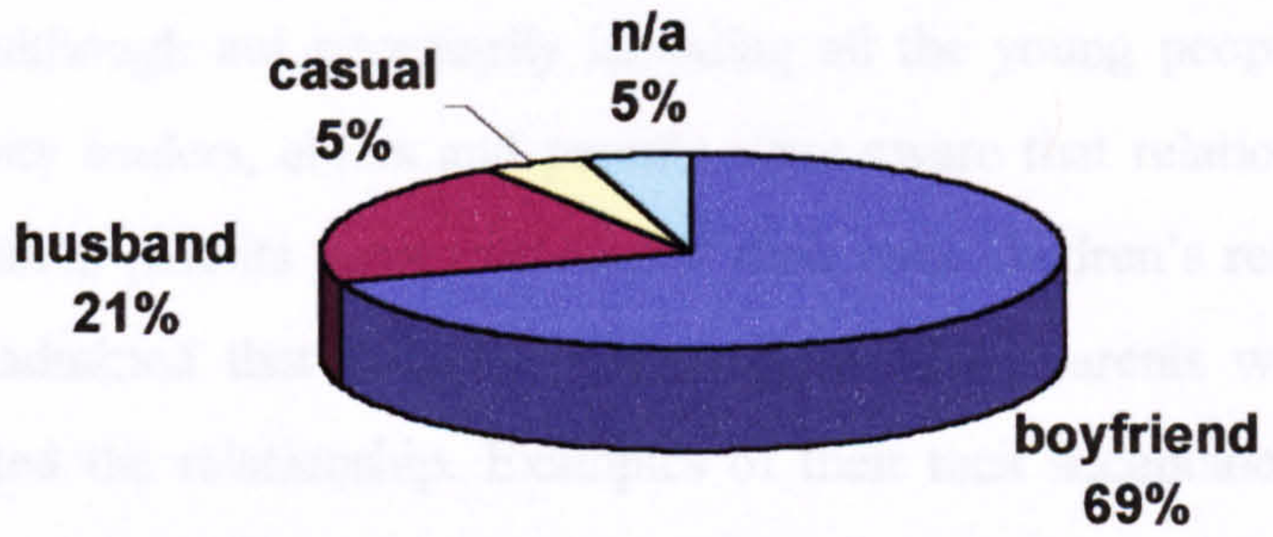
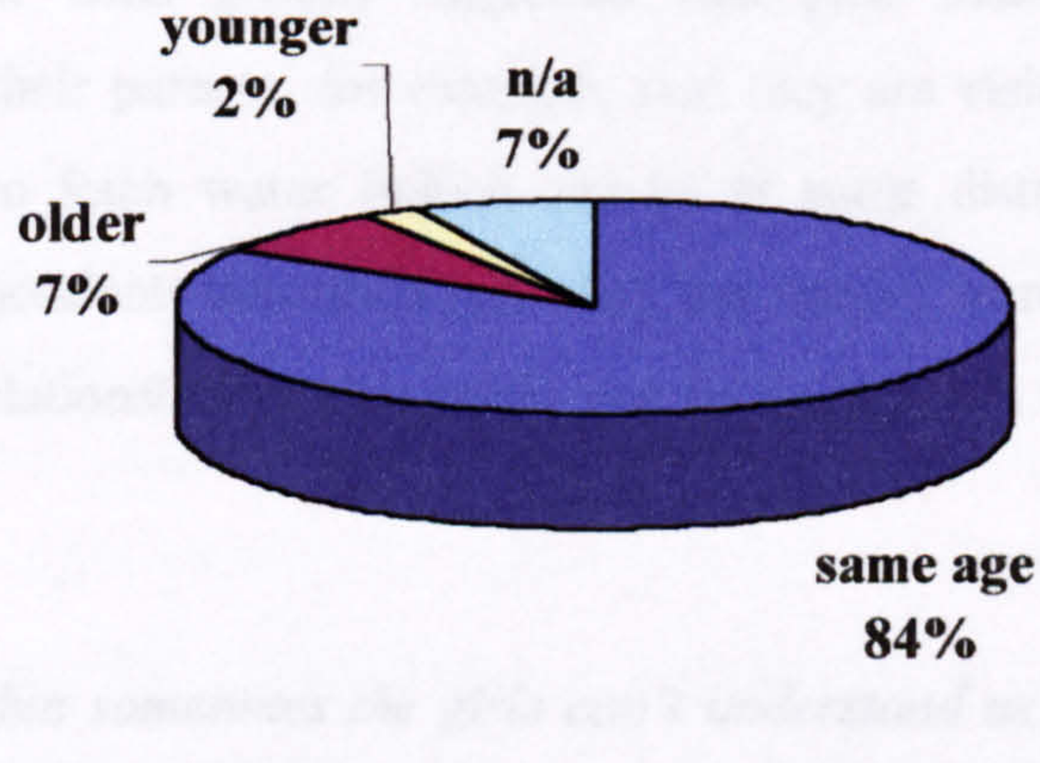


Figure 4-4 Relative Age of Partner for a subset of sexually active girls

(n=43, 3 missing values (n/a))



Sexual Relations amongst Unmarried Adolescents in the Rural Community

In focus group discussions with both girls and boys, there was a general consensus that sexual relationships were common amongst unmarried adolescents in the community, although not necessarily including all the young people. They believed that community leaders, elders and parents were aware that relationships take place but on the whole parents were unaware of their own children's relationships. Some respondents admitted that there were exceptions when parents were aware of but tacitly accepted the relationship. Examples of their tacit acceptance included: when the young people have been going together for a long time and the parents think they might get married; if parents have become tired of shouting at their children or if they see a girl wearing new clothes but do not question her as to where they come from.

Both boys and girls groups described several strategies that young people use to conceal their relationships. For example, young people may pretend not to know each other when they meet in public. There was general agreement that parents could not be cognisant of their children's movements at all times of the day, and young people were therefore, able to meet each other in the afternoon and evening, and occasionally during the night. Girls groups suggested that girls make excuses about their whereabouts to their parents, for example, that they are visiting a girlfriend or that they are going to fetch water [which can be at some distance from the village]. Several male respondents described how they use special words and language to talk about sex and relationships which could not be understood by parents, or even by their girlfriends:

> *We speak that sometimes the girls can't understand us. These are terms the boys can be using even when the parents are around so that they can understand and the parents won't know* (B1)

One respondent described how it was easy to conceal a relationship from parents who are illiterate:

> *If you have parents who don't go to school you can write this letter and give to your parents* [and] *say "if this person comes give this letter or this piece of letter to this person". When she comes she read everything. There you are telling her when to see you...* (B1)

Sleeping arrangements in compounds were cited by several groups as facilitating the concealment of sexual relationships. Most girls, of all ages, sleep with their mother and younger children in the kitchen, or in the "female" part of the house. Boys, however, are normally given a room of their own in the "male" part of the compound when they reach maturity. All groups agreed that it is more usual for girls to visit boys in their compounds than vice versa. Several boys described how girls can enter a compound without their parent's knowledge by climbing through a window or entering through a back way to escape notice. For example:

> *They will hide it very well to some extent that the girl will pass through the window and enter the house* (B4)

First Sexual Encounter

Ten girls who were STI positive were re-interviewed in depth about their sexual relationships. Of the ten respondents, nine described their first sexual encounter. For two of them it was with their husband after marriage. Seven of the women described similar scenarios where they met the boy on the road or in the village and he made an initial approach to suggest "friendship" and invited her to come to his house. The first sexual encounter took place in his house although not necessarily immediately. A couple of girls said that it was weeks or months before they had sex with their partner. Most said they feared to have sex for the first time and four of these described being forced into having sex for the first time. For example:

He dragged me and when I wanted to fight against it he told me that if I fight and people know about it I will suffer the shame more than he will do. So I didn't fight again (Individual Interview (II) 9)

The first day he invited me to his house I was pressurized. We fought over it until he overcame me since he is a man and I don't have equal strength with him, he was about to sex me (II7)

At the initial stage I was afraid but he shouted on me to pull off my wears. Then I pulled off and didn't fear again (II11)

Despite expressing reluctance, six of the girls continued the relationship. Only one respondent did not meet her partner again.

Reasons for Engaging in Sexual Relationships

Several reasons were given by focus the groups as to why young people seek sexual relationships. Amongst girls, reasons mentioned included: liking the boy; avoiding being lonely; and sexual satisfaction. Boys also cited liking the girl. However, the most commonly mentioned reasons were the urge for sexual satisfaction and for social prestige in front of their friends. One boy described the need to have sexual satisfaction:

> *Since it is nature you cannot stay without a girl or a girl stay without a boy. So there is now a tendency that you will now go and look for a boy or the boy will go and look for a girl so you will have a close sexual intercourse* (B2)

However, most groups, boys and girls, maintained that girls also enter sexual relationships for material and financial support. The types of support mentioned included gifts of soap, cloth, face-cream and money. There was also an impression that some girls feel forced to engage in sexual relationships because of poverty or in order to continue their education. Examples of this view are summarised as follows:

I also support what she has said because most girls do [have relationships for support]. *When you are a girl and may be you are so poor may be even the money to buy tissue you don't have....so things will force you to do what you don't have to do. So for that they use to get boyfriends in order to get money sometimes to feed ourselves* (G6)

Most girls like ...befriending a boy because....after they are grown up they see themselves [with] *nobody to sponsor them. In short they like education so in such case if any boy comes across their way and ask them about friendship.....she will accept* (G6)

Two male respondents suggested that parents even encourage girls to have relationships for financial reasons.

In the in-depth interviews four of the respondents mentioned that they had received money from their partners which they had used for items such as clothing and soap. One went on to specify the amounts of money she was given:

He used to give depending on how much he has at a particular time. Sometime he gives 200 Naira, he gives 150 Naira and 300 Naira when I have greater need (II5)[37]

[37] At the time of the In-depth Interviews the Naira: Sterling exchange rate was approximately 100N=£1.

Sources of Information

There was agreement in the focus group discussions with girls and boys that parents do not discuss sexual matters with their children except to prohibit them to have sex. Most girls described how their parents had advised them to stay away from boys, not to go outside and not to "mess up" by becoming pregnant. As summarised by one respondent:

> *They* [parents] *advise...not to go about boys because it exposes them to a lot of diseases that comes about it, and secondly they advise their daughter not to go about with boys because if they pregnant them they* [the parents] *won't accept it.* (G2)

Similarly the majority of boys agreed that it is unusual for parents to give information about sexual matters. In the words of one boy:

> *It is not very common that a parent will have a gist* [talk/gossip] *with you in that way because that time they think there will be no respect so they will like to isolate those words from him, being the child* (B2)

However one male respondent recounted a story of how a father told a boy about sex:

> *My friend told me of that he went to his father to enquire why is it that hairs is growing on his penis. His father quickly told him...everything* (B1)

Although many boys did not feel that parents speak directly to them about sexual matters, many male respondents mentioned that they had heard older men and brothers "gisting" [talking/gossiping] about the subject. One group mentioned the village "recreation centre" as a place where such conversations take place. This is an open hut in the village reserved solely for men and boys to meet and chat.

The church was mentioned by girls as another source which teaches them not to have sex. One girl who attends the Deeper Life Church[38] described typical teaching:

> *In the Church they say that you should not do anything like that because it is not the will of God. That if you do it God will not be happy about it. So in case of that you will be afraid to do it* (G2)

There was general agreement within groups that this echoes the teaching they had received in other churches.

School was commonly cited by groups as a source of sexual information, particularly the integrated science lessons in lower years of secondary school and biology lessons in the highest grade (SS3). Boys also mentioned that they had been taught about sex and reproduction during sports lessons. Although girls said that they had been taught the subject at school, further questions revealed that they had a very limited knowledge of female anatomy or the process of conception. Informal interviews with some girls also suggested that a Youth Corps[39] teacher visiting the school some years previously had taught human reproduction, including contraception using the "safe period", as part of their lessons on agriculture. One girl had learnt about menstruation from her doctor, but the group admitted that they did not normally receive such information from health professionals.

One of the main sources of information for both girls and boys is their friends. All groups cited gossiping or "gisting" with age mates and friends as their source of information. One boy gave a typical example of how knowledge is spread about methods of preventing pregnancy:

---

[38] An evangelical, 'Born Again', Christian church.
[39] Programme of national service for new graduates to work in rural communities.

> *Like the Andrews' Liver Salt, they said they will give it to a girl who have not done it before just to try it, and after trying they see that is work then she will tell her friends* (B2)

Other media were mentioned as sources of information about sex. Girls groups mentioned newspapers, books, radio, television and music as ways in which they find out about relationships. One group named popular teen magazines such as "Ikeba Supper", "Lolly" and "Super Story" as their sources of information. Boys also mentioned books and magazines in general. One group also mentioned "blue films" as seen on video.

Sexually Transmitted Infections

In the Rural Survey, vaginal discharge was reported by 82.4% of all adolescent respondents. Although itching was frequently reported (46.6%), few (2.8%) had sought treatment of any kind. The following prevalence of STI was found amongst adolescents:

Table 4-4: Sexually Transmitted Infections

Sexually Transmitted Infection	All adolescents (%), n=410	Sexually active adolescents (%), n=239
Gonorrhoea	1.0	1.7
Syphilis	1.5	2.6
Chlamydia	4.4	7.5
Trichomonas	5.6	9.2
Any STI	11.5	19.2

Reactions to a Diagnosis of STI

After the survey, ten adolescent girls who had tested positive for either gonorrhoea or chlamydia and who could be located in the village were interviewed in depth about their recent sexual relationships and how they, and their partners, had responded to their infection. These are summarised in the form of short case studies in Appendix 11. At the time of the in-depth interviews, four of the women were married and three had partners who were in the process of paying the brideprice. All of the women had only one current partner and four of the women had only ever had sex with that partner in their lifetime. Of the others, three women had only ever had two sexual partners and two women had had three partners.

Four of the women did not tell their partner about their infection. Two of these women were married and said they were afraid of their partners' reaction to the diagnosis, including the possibility of violence. Of the five women who had discussed the infection with their partner, three of the men denied having other partners and blamed the infection on the woman. One man had another sexual partner who was known to his wife but he said he was too busy to come for treatment. One man did go for treatment. (One woman was extremely reticent to give any information about her relationship. She was unmarried and had only ever had one sexual partner).

Knowledge of STI

Knowledge of STI was sought from focus group discussions with adolescent boys and girls. Amongst both girls and boys groups, the diseases spread by having sex most commonly mentioned were gonorrhoea and AIDS, followed by syphilis, "komkegba" and "sikiribop". Knowledge of some the symptoms associated with AIDS seemed to be quite widespread and groups said that they had learnt about it in school. One respondent mentioned AIDS by its French acronym SIDA. Symptoms associated with Aids mentioned in focus group discussions included:

. . . it dries the body, person becomes slim, it reduces weight
. . . it stays about two years before it shows
. . . it drinks your blood, skin changes colour
. . . legs swell up and you pass out water
. . . causes diarrhoea
. . . it is difficult to deliver a child
. . . destroys the organs
. . . causes death; it kills
. . . if you go to hospital the doctor gives you an injection and you die

Gonorrhoea was commonly associated with problems with urination and pain in the stomach and the body. Two respondents mentioned that it causes reproductive problems in women "it causes somebody uterus to damage" and two others that it causes death. There seemed to be less detailed knowledge of the other commonly

mentioned STI. There was some contradiction amongst different groups whether komkegba and sikiribop were the same as gonorrhoea and syphilis[40].

Girls groups also commonly mentioned "vaginal scratch" as a disease that is passed on through sex. Symptoms mentioned in association with vaginal scratch included itchiness and feeling wet in the private parts, pain, and having a white discharge. As one respondent said:

It itches. At times you feel as if you are menstruating (G3)

Other diseases mentioned occasionally by single respondents in girls focus groups were small pox, candida and chlamydia. Other diseases mentioned only by boys were baygins (which causes a congenital problem in children), "gbere" (no details given); malaria; typhoid and tuberculosis.

There was general agreement on the ways to prevent acquiring STIs. They included staying faithful to one partner, not having sexual relationships, using condoms, and taking tablets (not specified). One male respondent mentioned a traditional medicine, "olie", which can be taken before sexual intercourse and another respondent, the root of the orange tree. Other methods mentioned by boys were keeping yourself clean and avoiding sex during menstruation.

All groups were intensively questioned about whether they felt that it was possible to stay faithful to one partner. In the girls focus groups, there was general agreement that it is rare for couples to stay together. Many girls blamed men for seeking other partners:

It is impossible because it is not all the boys that like to stay with one girl (G3)

---

[40] The medical team did not investigate this further at the time.

Several respondents said that it was men who travel away for periods of time who were most likely to seek outside partners. Although there was more support for the notion that women tend to remain faithful, a few respondents admitted that it was occasionally women who sought additional partners. Lack of money was given as the reason why women seek other partners:

> *If a man is not helping a girl enough she will find another* (G2)

A couple of respondents said that women who seek outside partners are likely to be punished or sent away from their homes, whereas men who seek other partners are not punished.

In contrast, most boys focus groups agreed that women were more likely to seek other partners. Again the main reasons given were that women seek other partners if their husband is not feeding them or doesn't give them enough money. One respondent felt that women are easily "panicked" by men and are therefore likely to stray from their husbands if another man calls them. However, one male respondent felt that men were likely to take concubines, and there was little that women could do about the situation.

Pregnancy and Abortion

Prevention of Pregnancy

The Rural Survey revealed that only 5.3% of adolescent girls who reported ever having sex had used a modern contraceptive method. However, focus group discussions with both girls and boys suggested that they were aware of different types of modern contraceptive methods. Most groups immediately suggested "family planning tablets" and condoms when asked to name methods of "prevention[41]" that they had heard of. A couple of respondents suggested that there were doubts about the efficacy of contraceptive pills:

> *one thing is that we observe that the tablet deceive them, because when they're taking tablet, and for their sexual intercourse, thinking that they're free* [they do] *not know that the tablet it deceive them till they get pregnant.* (G7)

In a couple of groups it was clear their that concept of "family planning tablets" was not limited to the contraceptive pill. For example one group mentioned Dr Bonjeans (a multivitamin "tonic" remedy) in the context of "family planning tablets."

Both boys and girls groups clearly understood the use of the withdrawal method for preventing pregnancy. However, although most groups mentioned the safe period as a means to prevent pregnancy, there was little consensus about when such a safe period occurs in the monthly cycle. The following table gives the differing opinions on when it is "safe" to have sex without getting pregnant:

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[41] A pidgin term used commonly by adolescents in both rural and urban communities to mean the prevention of pregnancy.

Table 4-5: Opinions Expressed in FGD about the "Safe Period"

Girls FGD	Boys FGD
the middle of the month is safe	*girls know themselves*
days 1-10 and 20-28 from menses are safe	*six days before and after menses are not safe*
sex during menses causes pregnancy	*the menstruation period is not safe*
five days before and after menses are safe	*not to have intercourse with a girl during her menses*
	first ten days are unsafe

Focus groups were asked to name all the different methods of "prevention" they had heard of. Beyond modern contraceptives, a surprising number of methods were mentioned. The following tables summarise those mentioned by female and male groups:

Table 4-6: Methods of Preventing Pregnancy Cited in Focus Group Discussions

GIRLS FGD	forms of contraception and patent medicines	other products
commonly cited	"family planning"	'native' medicines mixed with "kaikai"[42]
	condom	"hot" e.g. kaikai, gin, Schnapps
	safe period	small Stout
	Andrew's Liver Salts	strong Lipton tea (without sugar)
	menstrogen	salt with kaikai or with water
	white quinine	
	injections	
	withdrawal	
	ergometrine/ergot	
rarely cited	paracetamol, also with gin	urinate after intercourse
	Dr Bonjeans	Coke, Krest, Sprite
	Chloroquine	lime also with gin
	buscopan	"purge" tablets
	vaginal foam	TopTab
	ampicillin	Nescafe
	M676	orange
	tetracycline	lime stone
	white medicine in the vagina	lemon stone

BOYS FGD	forms of contraception and patent medicines	other products
commonly cited	condom	"hot"
	withdrawal	herbs/native medicine/pepper in kaikai
	safe period	
	family planning	
	Andrew's Liver Salts	
rarely cited	white quinine	lemon stone
	ampicillin	salt and water
	tetracycline	fruited pumpkin
	using thermometer to detect ovulation	small stout
		palm wine
		volume 10

[42] local gin

Many more methods were mentioned in girls focus groups than boys. Interestingly boys frequently mentioned methods in the context of them "giving" the girls something to take, whereas the role of boys in preventing pregnancy was never mentioned by the girl. On probing, most methods cited by girls tended to be used after sex and were taken orally. In contrast, boys mentioned methods which were taken before and after sex, and one boy mentioned douching the vagina with salt and water to prevent pregnancy.

The in-depth interviews with ten adolescent women supported the wide range of methods of prevention of pregnancy revealed in the focus group discussions. Of the seven girls who gave details of what they used to prevent pregnancy, two did not use any method, one of whom said that she had heard that it would cause infertility:

> *I heard from people that if one continue taking preventive tablets it can make her barren.* (II11)

One respondent said that she and her partner used condoms but not every time. Another used the "safe period" method of counting days:

> *For instance if I used to see my menses on the 20th of a month he will only have sexual relations with me from first to tenth of the month and stopped until I see my menses that month before he will sex me again* (II9)

Two girls mentioned that they took family planning tablets, but on probing both of them took them incorrectly. One respondent said she took one family planning tablet and another drug given to her by her boyfriend after having sex. The other said she took two family planning tablets after sex. One respondent used roots given to her by a traditional healer, which she took after sex.

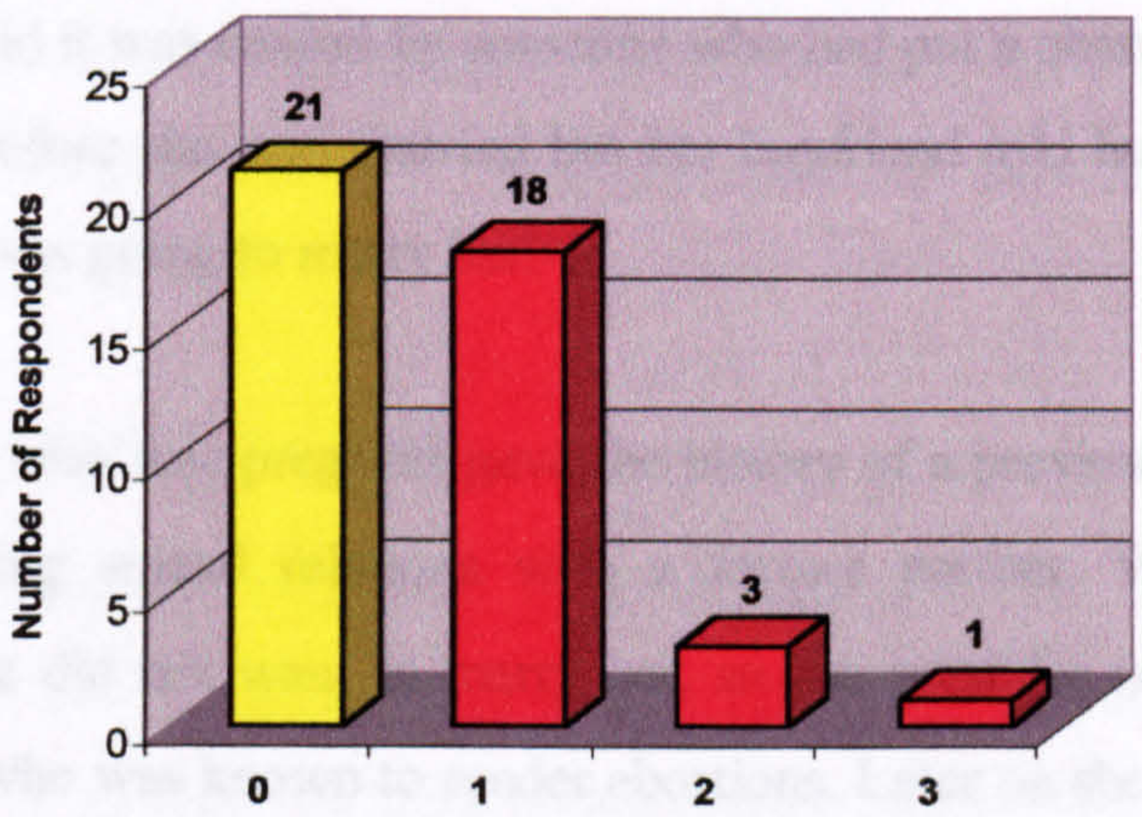
History of Pregnancy and Abortion

In the Rural Survey, 39.1% of the 254 sexually active adolescent girls reported having been pregnant before and 22.1% said they had terminated a pregnancy. In the follow-up sub-sample, 43 sexually active adolescents were re-interviewed to get more detail on their sexual histories. 41% of adolescents who had initially reported no abortion, or had not responded to the question in the initial survey, later admitted to an abortion. The abortion rate amongst all girls could, therefore, be as high as 22% among girls less than 17 years and 43% among 17-19 year olds, that is 33% overall.

In the follow-up Rural Re-interviews of 43 sexually active adolescents, six of the respondents had one child. Half of the respondents, 51.2% (36.3, 66.1), reported having had at least one previous abortion. The following table summarises the number of abortions reported:

Figure 4-5: Number of reported induced abortions in a sub-sample of sexually active adolescents

(n=43, 0 missing values)



The 22 women who had ever terminated a pregnancy were asked for details of their last abortion. Eighteen took place in a private clinic and two in a public hospital. All these were described as a D&C. Five of these women said that they had initially sought a termination from a chemist but it had been unsuccessful. Of the remaining two procedures, one was carried out by a chemist and involved an injection and tablets, and in the other case the girl initially sought a termination from a traditional healer which was unsuccessful. She then went to a chemist where she was given an injection. Fourteen of the girls were in school when they had had their abortion. The reasons given for having the abortion included: wanting to stay in school (11); not being married (9); being too young (1), and being afraid of her parents (1). The girls' partners paid for the termination in all but one case in which the girl and her partner shared the cost. The people who were aware of the termination were the partners in all cases and close friends in many cases. Parents were only aware of the procedure in two cases where there had been complications.

Previous pregnancy and abortion histories were discussed with the ten adolescents who took part in the in-depth interviews. At the time of the interviews, six were pregnant or had recently delivered. These women were all with husbands who had paid at least part of their bride price. One had miscarried previously after she was married, and she said it was caused by someone who had put a charm on her. Another became pregnant before she was married but her boyfriend told her not to "tamper" with it because he was going to marry her.

One of the women who was pregnant gave the history of a previous abortion. At the time she was having sexual relations with a former partner. When she became pregnant he said he did not want to marry her, so she went for an injection from a man in the village who was known to render abortions. Later on she met the man who later became her husband and started having sexual relations. She said his parents accused her of no longer being able to become pregnant because of her previous

abortion so she did not use anything to prevent pregnancy during sexual relations with him. She said:

> *The parents of my husband used to tell me that I will never become pregnant since I committed abortion some time.* (II1)

Amongst the other respondents, one said that she had been pregnant but had sought an abortion. She said that her menses was late so she had gone to a traditional healer who gave her herbs and root mixed with local gin. Her menses came several days later. Her boyfriend paid for the treatment.

Another respondent said that she had become pregnant by a previous boyfriend. He had refused to marry her because he was still at school and he also said that he was not responsible for the pregnancy. The respondent argued with him, reminding him of the date when they had had sex and the date her menses should have come. She said:

> *I was very annoyed because at that time I had no knowledge of abortion which I would have done if I had known.* (II9)

Her mother found out about the pregnancy and she was sent with a relative to the boy's house to be married. Her boyfriend was not there so she came home again. Her parents then relented about her marrying since they decided that the boy did not have a good background. She never spoke to the boy again and gave birth to a daughter. She later married another man.

Attitudes towards Pregnancy

Attitudes towards schoolgirl pregnancy were examined in Focus Group Discussions using a "vignette" about the hypothetical case of Lekie who becomes pregnant whilst attending school. The girls groups were broadly on agreement that Lekie should drop out of school for the period of her pregnancy and childbirth. Many respondents felt that she should be allowed to come back to school after the birth, and they knew girls

in the village who had done this. There was a feeling that the decision rested with her parents who paid for her education. However one group raised the many practical problems of trying to look after a baby at the same time as attending school, such as breastfeeding and being late because of dressing the baby in the morning. A couple of respondents alluded to the shame felt in getting pregnant whilst at school. In their experience when a girl drops out of school because of pregnancy, other girls might try to conceal the reason why she has gone but boys tend to be much more open about the "shameful" reason. The groups were equivocal about the expulsion of Lekie's boyfriend. Although it was generally felt that they should both bear responsibility for the pregnancy and should therefore leave, the girls thought that the boy would find it easy to register at another school.

Few male respondents felt that the boy should be expelled from school. One respondent was concerned to know if Lekie was in primary or secondary school because she would be too young for sex in primary school and the boy would therefore be at fault. One respondent also argued that unless he continued his schooling the boy would not be able to look after the child. Another felt that he needed to be taught a lesson or he might make another girl pregnant. However, this was countered by a couple of respondents who suggested that it in general it is girls who approach boys for sex. Several expressed the view that since the boy had offered to pay for an abortion, he had fulfilled his responsibility. Since Lekie had declined the offer, she alone was responsible and should be expelled. However, as in the girls groups, there was widespread consternation that the headmaster had a right to expel them since he was not responsible for paying for their education. Similarly it was also felt that the boy could easily register at another school and therefore expulsion would be fruitless. Like the girls, most boys felt that Lekie should be allowed to resume her schooling after the birth of the child, but acknowledged that schoolmates might taunt her if she did.

The majority of both male and female respondents opposed the idea that Lekie and her boyfriend should marry. The reason given by many respondents was because the marriage would not last very long and would be fraught with friction. For example:

> *Marriage doesn't come out of force, but if they should force him to marry somebody, that marriage can hardly last* (G4)

> *Both of them will be forced to marry...because of that in other cases you can force them to marry, but the house after marrying each other, their house won't be in good condition* (B3)

Female and male respondents expressed the view that the boy would be likely to seek another wife if he was forced to marry. One girl felt that Lekie was too young to marry. Another suggested that Lekie's parents would seek contributions for the baby from the boy. Several boys resisted the notion of marriage but were in favour of providing support for the child. One respondent said that if the child was male he would take him to his own compound, even though this was against the local custom since a bride price had not been paid.

Some boys and girls recognised that if Lekie does not marry then her chances of marrying well had been greatly diminished. One female respondent used the phrase that the girl was "second-hand" and a male respondent referred to her as being "spoiled". In one focus group, respondents were adamant about the difficulties Lekie would encounter in meeting another partner in future:

> *I support that they should be forced to marry because it will be difficult for the girl to have another man or boy*

Again:

> *Boys will not like to marry someone who has gave birth to a child*

and:

> *In this place it is very difficult for a girl who has given birth to a child to get married* (G3)

Opinions were divided in other groups, A couple of respondents suggested that she could still marry her "age-mate" particularly if she was educated or if he didn't know that she had already given birth. Many respondents felt that she was more likely to marry an "old man", such as a widower, or a woman[43]. Although some respondents mentioned some advantages to marrying an older man, particularly if he was rich, it was generally agreed that this was a less desirable option than marrying an age-mate.

Attitudes towards Abortion

Views towards abortion were sought in response to the question "why did Lekie fear having an abortion?" In general, girls groups were much more sympathetic to Lekie's fear and provided several reasons why she would have been afraid. The main reasons given by many female and some male respondents were that: she might die and her womb would be damaged, thereby making her infertile. This was expressed is several ways:

> *It* [abortion] *can damage your womb and later you won't be producing a child* (G4)

> *It can kill. It can also damage your womb* (G4)

> *Either she might die or she will be very sick or she might not born again* (B4)

> *She feel maybe by the time they will abort her maybe she can die.* (G3)

Pain was also given as a reason by a couple of girls as a reason why Lekie might fear to have an abortion. In one group of girls, several respondents offered traditional and religious explanations as to why the person might die or be infertile. One respondent talked about how the spirit of the compound might not allow abortion and would punish the girl or the boy. Another said that the child might be God-given and if it is aborted the girl may not be able to have another baby.

In contrast to the generally understanding views amongst girls, many male respondents were much less sympathetic. One respondent suggested that the reason she was afraid was because she had not done it before and, since many people have abortions, it is safe. An example of this view is:

> *Courageously the way the girl refuse to go for the abortion I think that's good. But, when we take it to be a social matter,* [and] *this is not taken as a righteous matter, since both of them are students, she* [is] *suppose*[d] *to go in for the abortion.....since the girl refuse to go for the abortion so I don't think they suppose to expelled the boy.* (B1)

[43] In K'Dere it customary for an infertile woman with means to pay the bride price for, and therefore marry, another woman in order to produce children for her.

4.3 URBAN STUDY

Demographic Characteristics

In the Urban Schools Survey 1081 respondents were recruited, representing 81.1% of the eligible population of 1333 girls identified in randomly selected classes. Almost all respondents were unmarried (99.8%) and most (78.3%) were living with either one or both parents. Of the remainder, 20.2% said they were living with relatives, 1.1% were boarders in one of the schools (although the school primarily served day-pupils) and 1 girl said she lived alone.

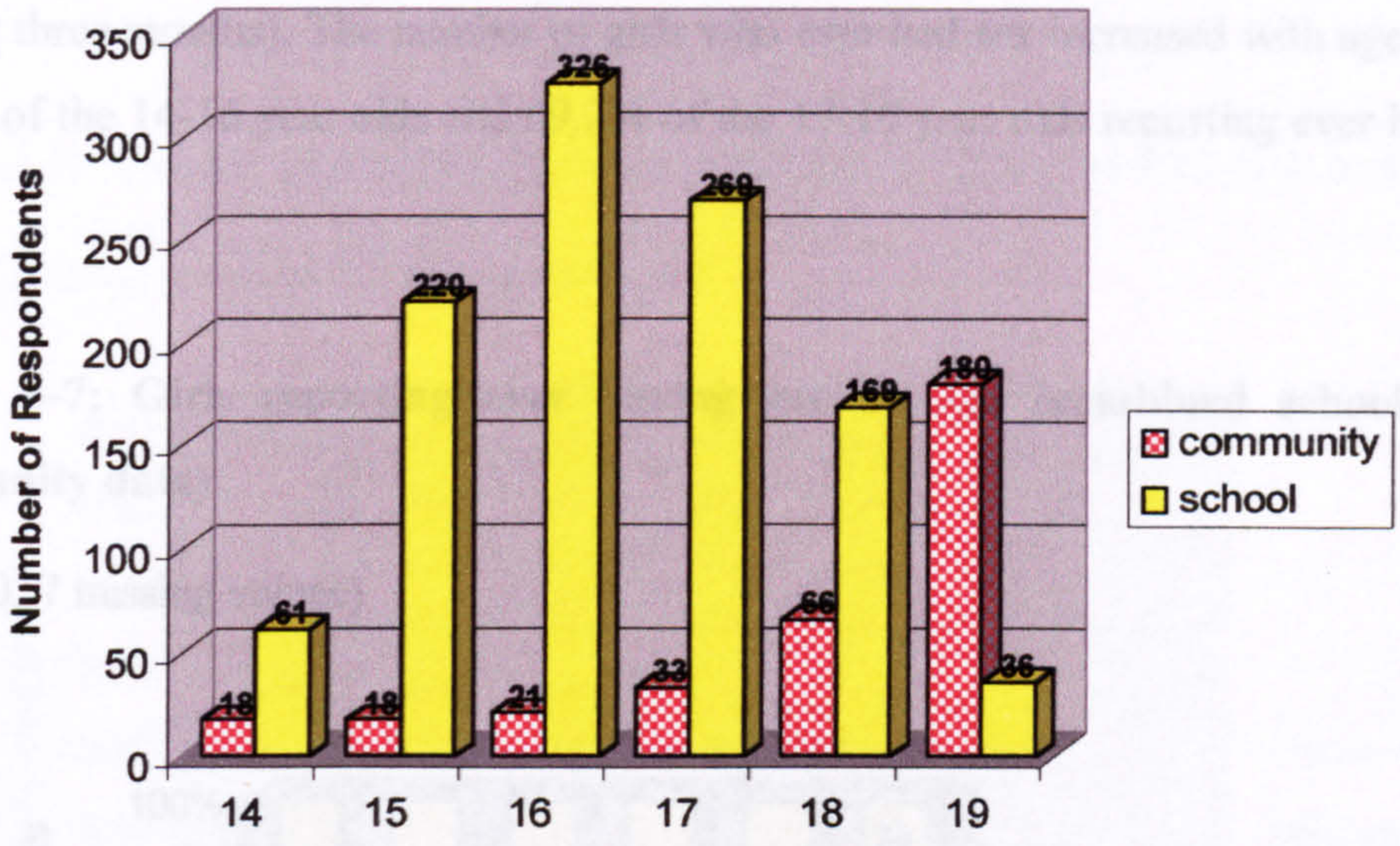
In the Urban Community Survey 336 respondents were recruited. The response rate was 71.9% of the eligible population of 467 girls identified by random cluster sampling. Most (95.8%) were unmarried, a further 3.6% were married or living with a partner and one girl (0.3%) said that she had separated from her husband/partner. 56.4% of girls lived with either one or both parents and a further 31% with relatives. Interestingly, 5.4% of girls said that they lived as house-girls (which was also given as their occupation). The education level of out-of-school girls was high: only 2 (0.6%) had never attended school. Of the remainder, 16.7% had attended some primary school, and 3.2% junior secondary school and 77.3% senior secondary school. 3 girls (0.9%) said they planned to go to University.

In response to a question about their current occupation, half (48.5%) said that they had no paid work. 14.9% were students in higher education or applying for higher education. 10.7% were employed as or training to be seamstresses, 9.8% were involved in trading activities and 4.8% in clerical or professional occupations. The age distribution of respondents is given in Figure 4-6. The distribution is skewed towards older girls, with 53.6% of girls aged 19 years. This may be a real finding since most girls had already finished school and were therefore likely to be older, or may reflect

selection bias, "heaping", by the community fieldworkers. (This is discussed further in Limitations of the Methodology, Chapter Five).

Figure 4-6: Age distribution of respondents in both urban school and community surveys.

(schools; n = 1,081, no missing values)(community; n = 330, 6 missing values)



The six urban focus group discussions were conducted with schoolgirls between the ages of 14 and 19 years. The Urban Dissemination Phase involved a range of participants, summarised in Table 4-7 below.

Table 4-7: Urban Dissemination Phase, Summary of participants

Groups	Total attendance
Adolescents in schools (male and female)	651
Out-of-school youth (male and female)	39
Parents (community groups and PTAs)	70
Teachers (male and female)	72
Health professionals (male and female)	21
Final public meeting	192

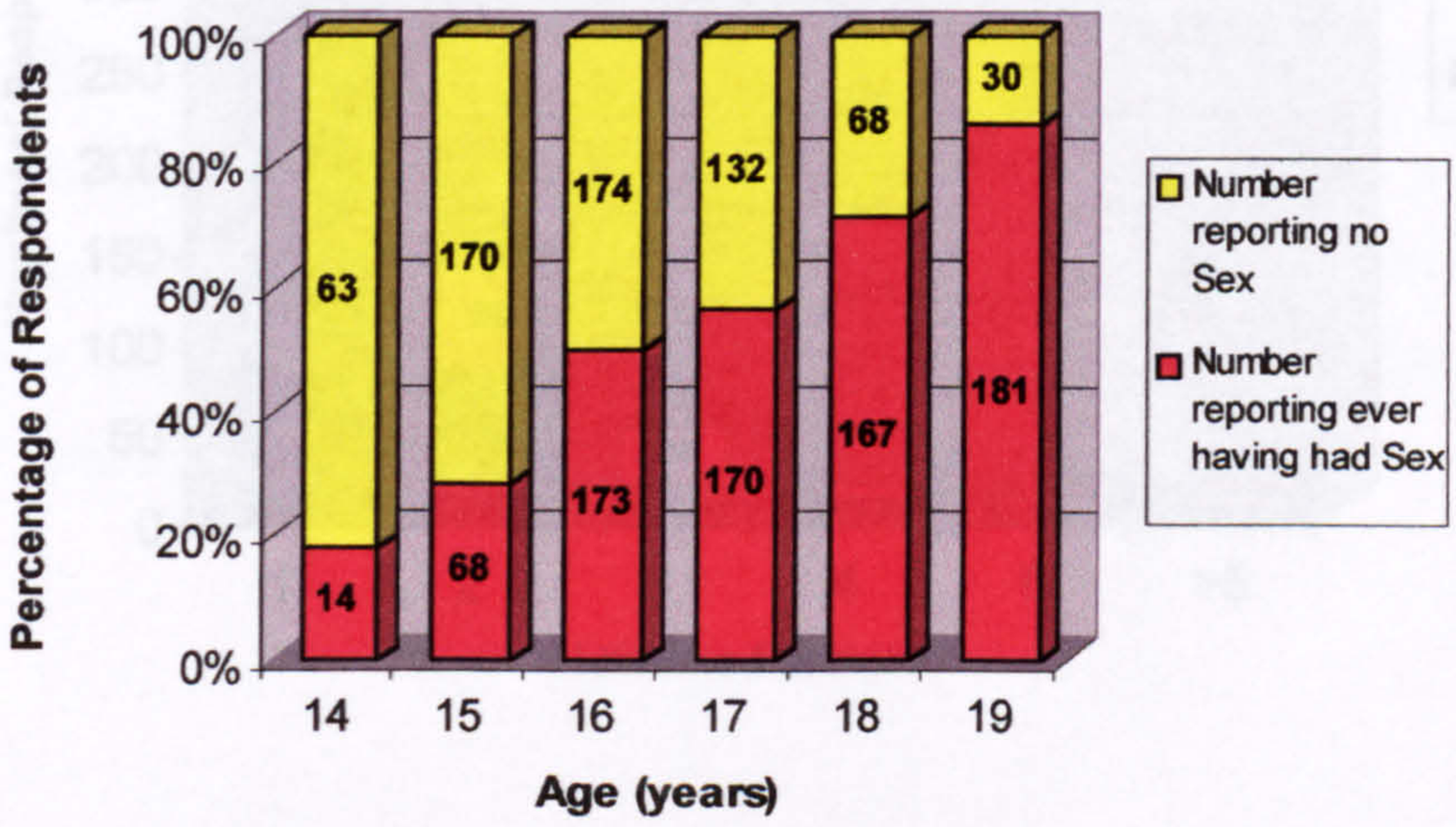
Sexual Relationships

Previous Sexual History

Of the 1410 girls in the Urban Survey (in and out-of-school), 54.8% (52.3, 57.3) said that they had ever had sexual intercourse, although of these, 12.4% (10.1, 14.7) did not have a current sexual relationship (defined as having at least one sexual partner in the last three months). The number of girls who ever had sex increased with age, with 38.5% of the 14-16 year olds and 69.2% of the 17-19 year olds reporting ever having sex.

Figure 4-7: Girls reporting ever having sex by age (combined school and community data)

(n-1410, 7 missing values)

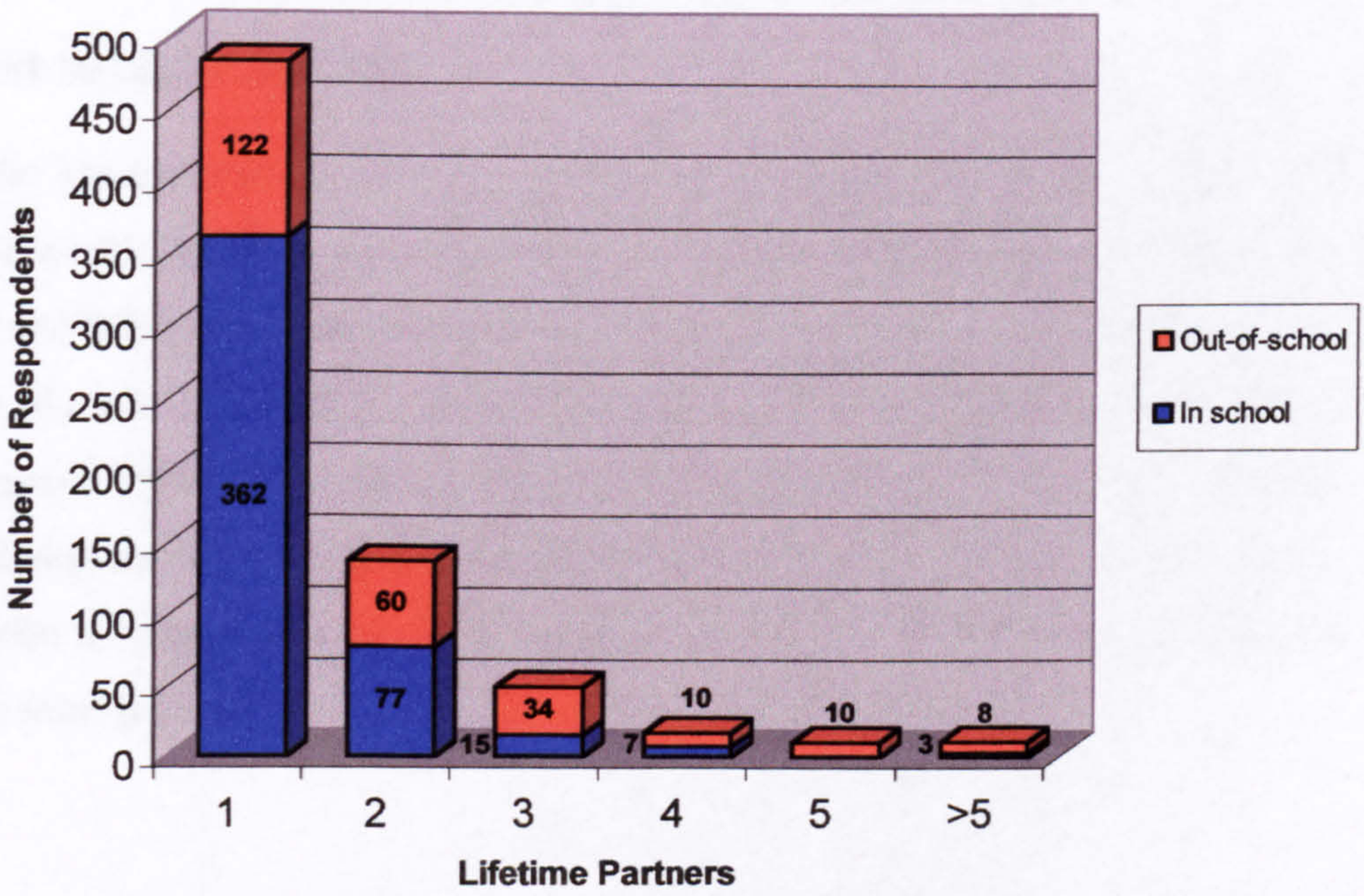


Significantly more out-of-school girls had had sex compared to those in school, 76.6% compared to 48.2% ($p<0.001$). However, this effect did not hold when age was controlled for. From the girls' recall of their age when they first had sex, the mean age for onset of sexual activity was 15.6 years.

Of 708[44] girls who had ever had sex, 68.4% (65.0, 71.8) reported only ever having sex with one partner (Figure 4-8). Overall the mean number of lifetime partners was 1.6 (+/- 0.4). 12.3% of girls reported three or more lifetime partners, with the highest number of partners reported by one girl of 10. There was a strong association between the number of lifetime partners reported by schoolgirls (mean 1.1) and out-of-school girls mean (2.02) which held when age was controlled for ($p<0.001$).

Figure 4-8: Number of lifetime partners reported by girls who had ever had sex

(n=1410, missing values for 65 respondents)



Of the 677 girls who reported a current partner, few reported more than one: 4.9% had two and 0.3% reported three current partners.

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[44] There were missing values for 68 respondents

Partner Characteristics

Of the 677 girls who had at least one partner in the last three months, the average age difference between the girl and her partner was 4.9 years, with the oldest partner being 22 years older than the girl. Most girls (96.5%) described their partner[45] as a boyfriend and most partners were unmarried (96%). The largest proportion of partners, 34.6%, were students (school, higher education or applying to higher education), 30.9% were in formal employment (clerical/professional or company employee) and 23.2% were engaged in business or trade. Only two girls described their partners as having no work and the remaining 27 did not fall into any of the above categories.

First Sexual Encounter

Girls who had ever had sex (n=773) were asked whether they had felt any pressure to have sex for the first time. 42.9% said that it had been by mutual agreement with their partner and 0.5% of the girls reported that they had initiated sex themselves. Of the rest, 43.5% said that their partners had requested sex and she agreed; 0.8% that is was pressure from friends and 3.4% that she had not agreed to have sex. (Replies were missing for 69 respondents). Amongst those who did not agree, several went on to describe how they were forced to have sex. 74 girls (9.6%) did not have sex again with the same partner.

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[45] Partner "1" was defined as their current or main partner. Most of the 37 other partners (partner 2 or partner 3) were also described as boyfriends and were unmarried.

Sexually Transmitted Infections

Amongst the schoolgirls who had had a general clinical examination (n=845), 48.2% reported having a vaginal discharge. Amongst out-of-school girls (n=179) the figure was 24.0%. Of all these, only 7.6% had sought treatment. The following figure gives the prevalence of STI amongst all girls who had ever had sex.

Figure 4-9: Prevalence of STI amongst girls who had ever had sex

(sample size n varies for each STI, see Table 4-8 overleaf)

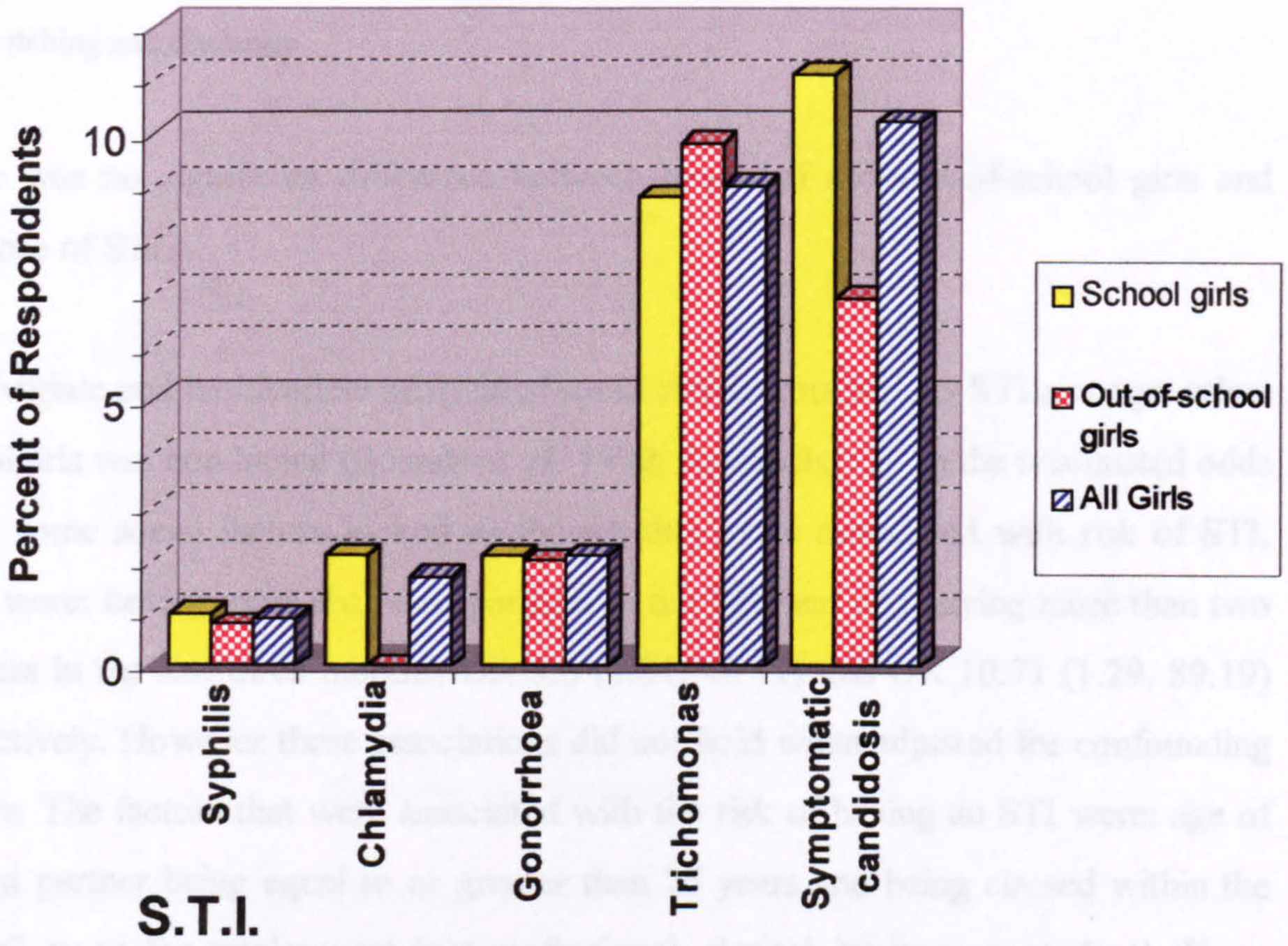


Table 4-8: Prevalence of STI amongst girls who had ever had sex

Infection	School girls			Out-of-school girls			All girls		
	Total[a]	No	%	Total[a]	No	%	Total[a]	No	%
Gonorrhoea	384	8	2.1	99	2	2.0	483	10	2.1
Chlamydia	382	8	2.1	99	0	0.0	481	8	1.7
Syphilis	414	4	1.0	125	1	0.8	539	5	0.9
Trichomonas	396	35	8.8	102	10	9.8	498	45	9.0
Symptomatic[b] candidosis	397	44	11.1	102	7	6.9	499	51	10.2

[a] Because some girls withdrew at various stages of the survey, different numbers of tests for each STI were conducted. The denominator for each test is therefore given.

[b] With itching and discharge

There was no significant difference between in-school and out-of-school girls and presence of STI.

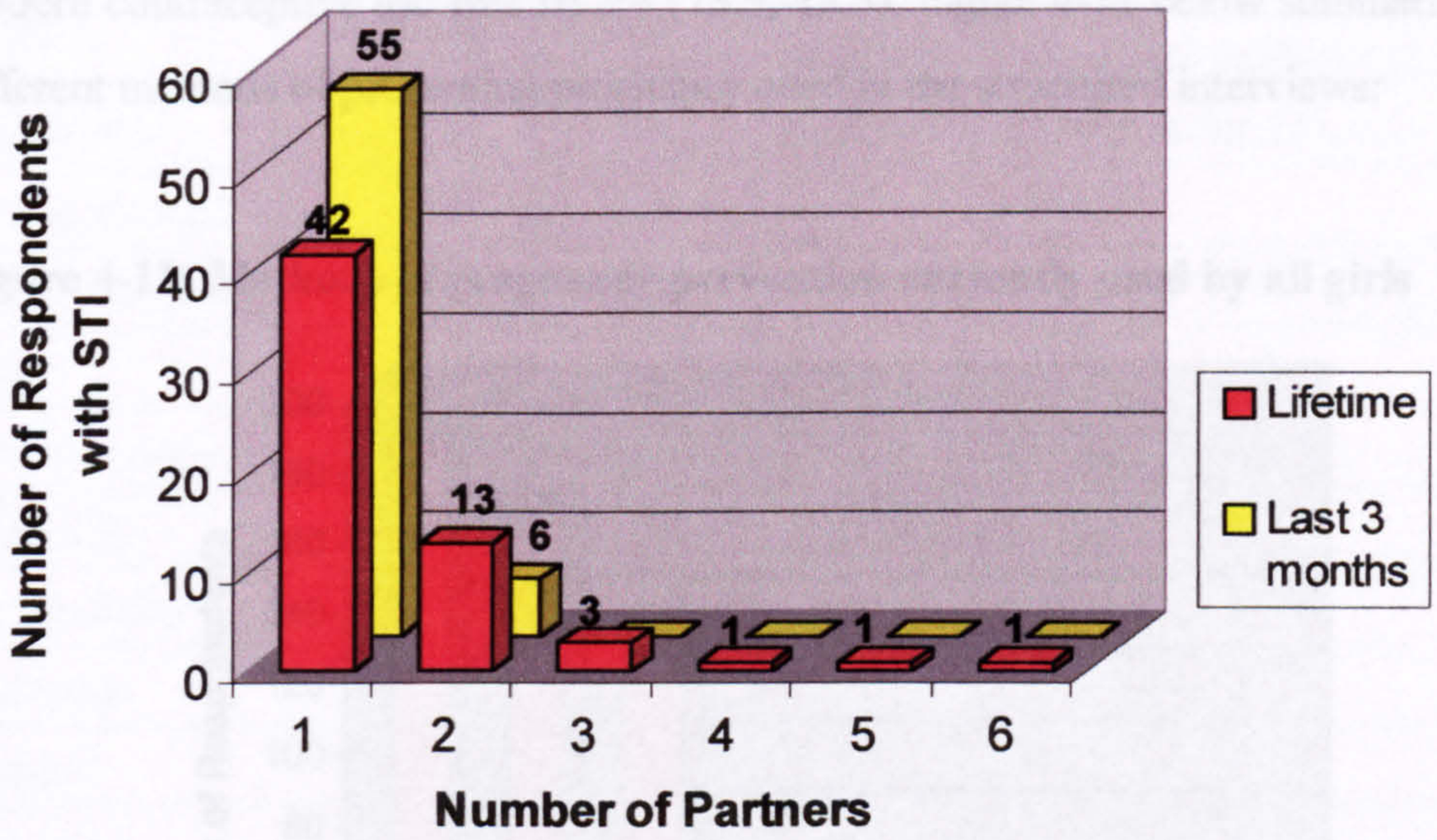
A univariate and multivariate analysis of social risk factors for any STI amongst urban schoolgirls was conducted (Ikimalo *et al.* 1999, Appendix 13). In the unadjusted odds ratios some social factors looked as though they were associated with risk of STI. They were: having more than two partners in the last year and having more than two partners in the last three months, OR 8.6 (1.84, 40.41) and OR 10.71 (1.29, 89.19) respectively. However these associations did not hold when adjusted for confounding factors. The factors that were associated with the risk of having an STI were: age of current partner being equal to or greater than 25 years and being classed within the "other" group for employment (not professional, clerical, business or student). These risk associations held when other confounding factors were controlled.

Because of the risk of sexually transmitted infections, girls who had ever had sex (n=773) were asked about their previous use of condoms. 21.2% of girls had used a condom in the past, however only 4.4% said that they used them all the time. Girls

who had ever had sex were asked how many sexual partners they had had in the last three months. Most only had one partner 83.1% (77.4, 88.8) and 12.4% had no recent sexual partners. Of the rest 33 girls (4.3%) had two partners and two (4.3%) had three. Of the 68 girls who tested positive for any STI (gonorrhoea, chlamydia, trichomonas or syphilis), 80.9% (71.6, 90.2) had only had one sexual partner in the last three months and 61.8% (50.3, 73.3) had only ever had one sexual partner in their lifetime. The numbers of sexual partners reported by girls who tested positive for any STI are summarised below:

Figure 4-10: Numbers of partners reported by girls who tested positive for any STI

(n=68, 7 missing values)



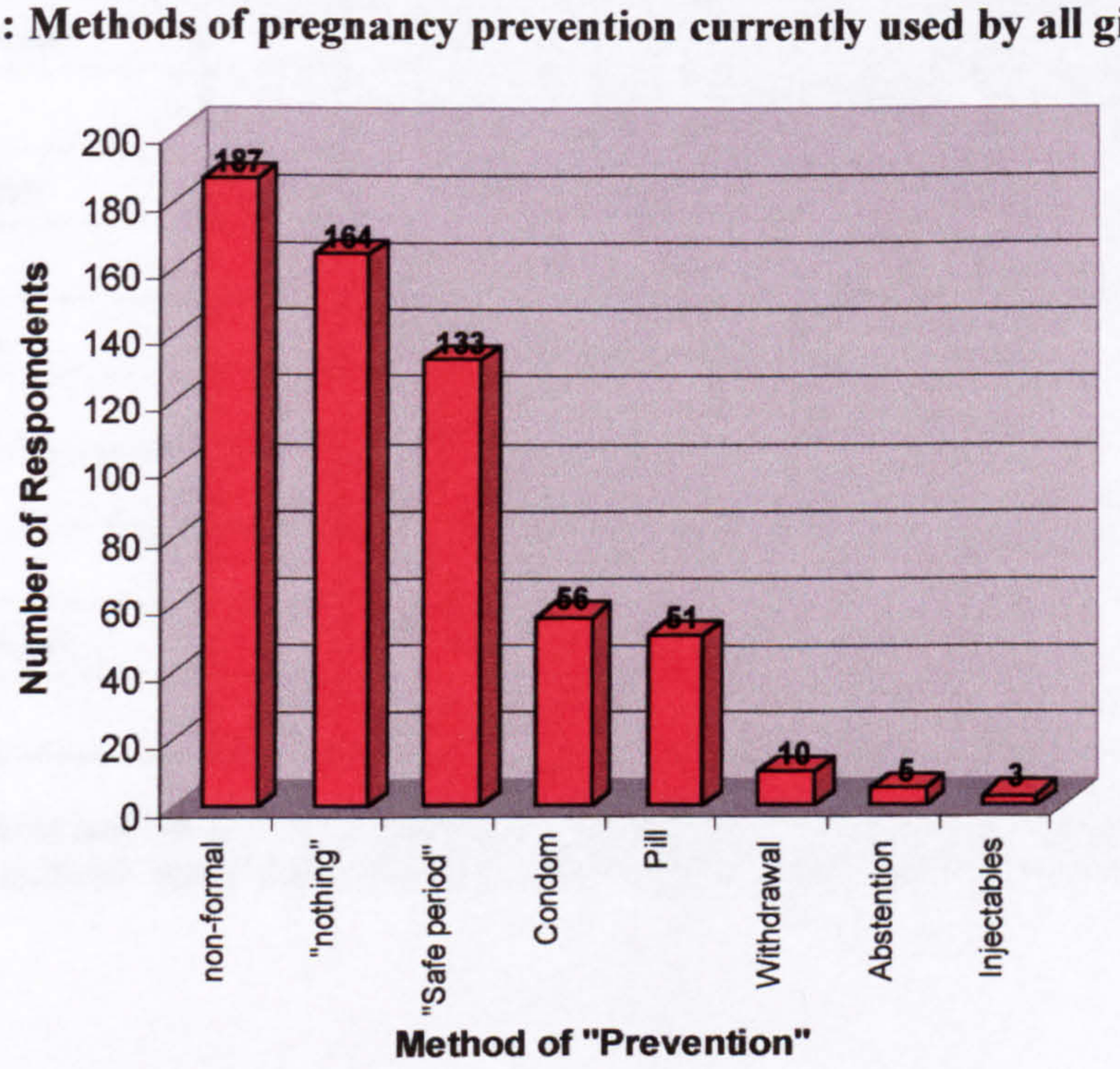
All 690 girls with a current relationship (in the last three months) were asked about their partner. 46.7% of girls were sure or suspected that their partner had other sexual partners, 45.9% were sure that they did not. Very few girls had observed any signs of STI with their partner such as pus or discharge from the penis (0.9%), ulcers or wounds on the genitals (1.3%) or pain while urinating (1.3%). There was no significant association between the partners' age in relation to the girl and the presence of an STI.

Pregnancy and Abortion

Prevention of Pregnancy

In the survey all girls who had a sexual relationship in the last three months (n=677) were asked what methods they currently used for "prevention". 27.6% (24.3, 30.9) used “alternative” but non-formal methods and a further 24.2% (21.0, 27.40) of girls did not use anything. Although 19.6% (16.6, 22.6) said that they used the safe period, further probing revealed that many did not have an accurate knowledge of the fertility cycle. The most popular notion was that a woman's most fertile period falls during and around her menses. Modern contraceptive use was low with 8.3% currently using condoms, 7.5% contraceptive pills and 0.4% “injections” (Depo Provera). Total modern contraceptive use was 16.2% (13.9, 18.5). Figure 4-11 below summarises the different methods of preventing pregnancy cited in the structured interviews:

Figure 4-11: Methods of pregnancy prevention currently used by all girls



Of the alternative or non-formal methods cited in the survey, Andrews Liver Salts was the most commonly used (12.1% {9.6, 14.6}). The following table breaks down the alternative methods cited by 187 girls:

Table 4-9: types of alternative methods currently used by 187 girls

Alternative method	n	% of all girls	mentioned in combination with[1]: (number of respondents)
Andrews Liver Salts	82	12.1	
Menstrogen	18	2.7	white quinine (4); Andrews' Liver salts (1)
White quinine	16	2..4	menstrogen (1)
Unknown drug	15	2.2	
Stout	14	2.1	salt (1); Andrews (1); unknown drug (1); injection (1); drug and Andrews (1)
Soft drinks[2]	11	1.6	Andrews (1); chloroquine (1)
Strong alcohol	9	1.3	
Native medicine	6	0.9	
Salt	4	0.6	lime (3); water (1)
Lime or lemon	4	0.6	dry gin (2); APC tablets (1)
Ampicillin	3	0.4	Andrews' (1)
Epsom Salts	1	0.1	
Buscopan	1	0.1	
Postinol	1	0.1	
Lipton tea	1	0.1	
Arpoil and Steel	1	0.1	
Total	187	27.6	

1. Where different methods were mentioned in combination the method first named is scored
2. Soft drinks included "Krest" (sparkling bitter lemon drink), "Coca Cola" and tonic water.

All girls who had ever had sex (n=773) were asked if they had ever used condoms. 4.4% said always, 16.8% replied that they used them occasionally and 67% had never used them (90 responses were not given). For other modern contraceptives, none had an IUCD or tubal ligation, 7.8% had ever used contraceptive pills, 0.6% injections and 26.9% the safe period.

Three follow up focus group discussions and meetings during the dissemination phase explored the use of the methods and revealed others. The following table summarises the methods mentioned.

Table 4-10: Methods of preventing pregnancy mentioned by discussion groups:

modern contraceptive methods	pharmaceutical products	patent medicines and other products	local products
contraceptive pill	white quinine (form of quinine)	Stout (small bottle) or beer	Tombo (fermented sap of the palm tree) boiled with stout
condom	Menstrogen	Andrew's Liver Salts	Alligator Pepper (seeds in pod, chewed and available in market)
vaginal foaming tablets	Gynaecosid	Lipton tea	Akanwu (potash)
	Chloroquine	Lime (boiled)	Kai kai (distilled palm wine)
	Postinor (progesterone only, morning after pill)	Various soft drinks: Coca Cola , Krest, soda water	Roots
		"hot" alcoholic drinks: gin and whiskey	
	Antibiotics	Dr Bonjeans Salt	
		Arpoil & Steel	

In voting exercises during the dissemination phases groups of adolescents voted white quinine as the method they thought was most commonly used by adolescents.

According to the girls, all the alternative methods are taken orally at different times after sex, ranging from almost immediately to when the first and second periods are missed. Girls said that the efficacy of each method varied according to how long after it is taken. For example, Andrews Liver Salts or local products mixed with gin are best used immediately after sex to "wash out the sperm". These methods are "effective" up to approximately two days after intercourse. If the first period is late then a stronger method is needed, such as Stout, to "make the period come". Pharmaceutical products such as Menstrogen and Gynaecosid are likely to be sought if the other methods have not worked. There were disagreements within groups about when each method could be used. However all groups seemed confident in the efficacy of the "alternative" methods. For example it was agreed in one group that a girl only becomes pregnant when she does not have knowledge of, or understand how to use, the different methods available to her.

Health Services for Sexual Health Problems

In focus group discussions girls were asked about where adolescents might go for advice on sexual health problems or to obtain methods of contraception. There was overall agreement that adolescents prefer to seek methods of "prevention" from chemists rather than "hospital"[46]. Respondents generally agreed that health care workers in the formal system are intimidating and judgmental. One described it:

> *When you go to hospital, the nurse will be looking at you with one kind eye* (U2)

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[46] Little distinction was made between hospitals, private clinics and health centres

The risk of being seen by parents, relatives or friends was also cited as a major disincentive to seeking care at hospitals. Groups agreed that adolescents prefer to go to chemists because of the following reasons:

- chemists are usually young[47]
- chemist shops are accessible
- costs are less and include flexible methods of payment
- chemists lack of formality or "protocol" in the sense that adolescents are not asked too many questions.

In the words of one respondent:

> *Chemists don't ask questions, they just give you the drugs* (U1)

In the follow-up "Mystery Client" exercise one peer interviewer, posing as a client, visited six different chemists in the community to see what methods of contraception she would be offered. Of the six shops visited by the fieldworker, one refused to give advice without a doctors' prescription. Another did not want to give advice since "different methods work for different people". For her late period, three shops recommended that she took gynaecosid for two days and the fourth shop, gynaecosid plus an injection of quinine. The shops recommended white quinine, Postinol, Menstrogen and "Arpoil and Steel" to prevent pregnancy in future.

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[47] In Port Harcourt, a "chemist" can either be a pharmacy run by a pharmacist or a patent medicine seller. In both cases it is usual that the person serving customers is unqualified. Chemist shop assistants usually serve an apprenticeship under the owner to learn about drugs and, later, how to administer injections. Drugs are generally available without prescription.

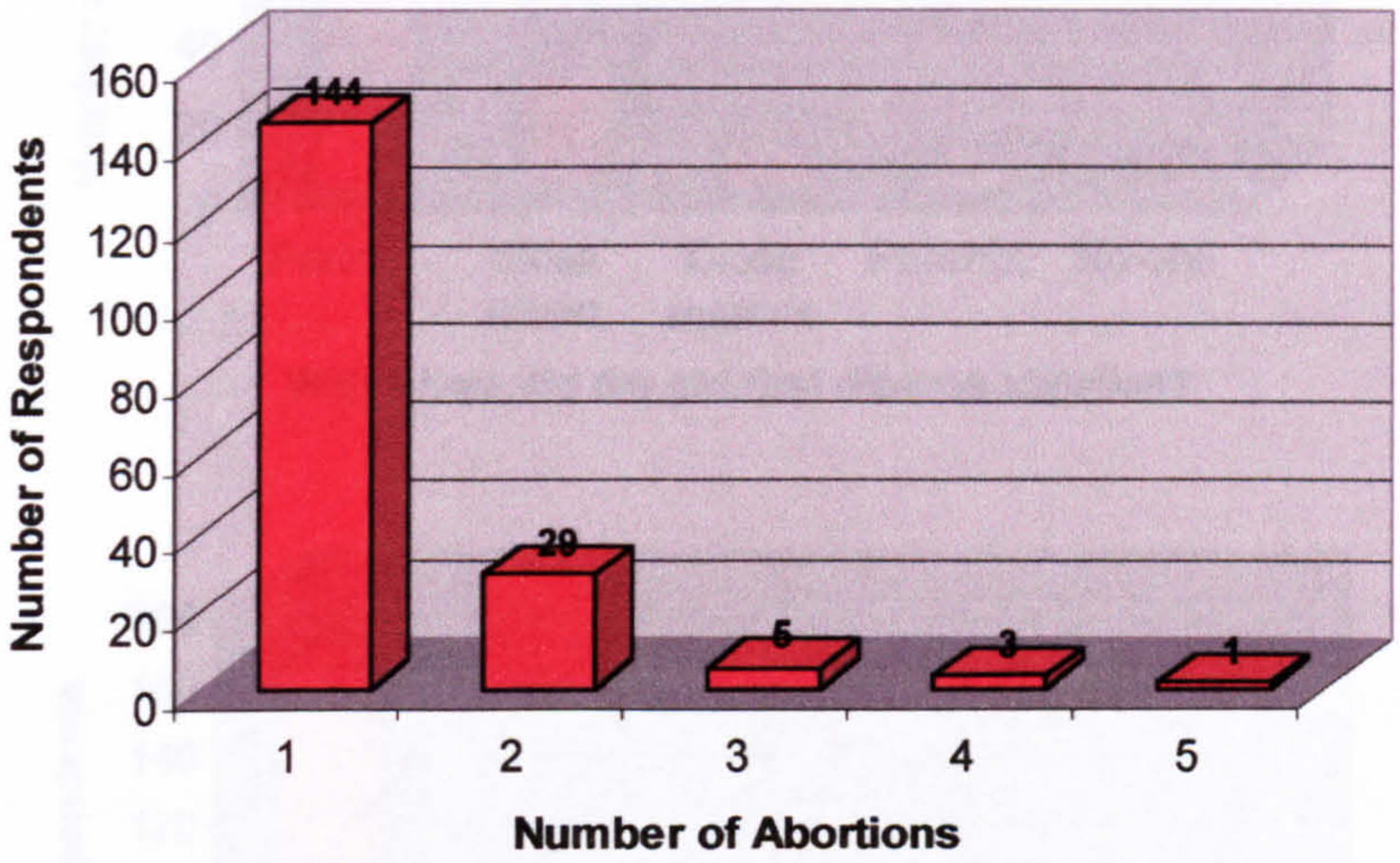
Histories of Pregnancy and Abortion

In the school and community-based surveys, of all 773 girls who had ever had sex, 26.3% (23.2, 29.4) said that they had been pregnant before. Differences between schoolgirls and those not attending school were striking. Significantly more out-of-school girls (45.3%) had been pregnant compared to those currently in school (17.4%) ($p<0.001$). This effect holds even when age, a confounding factor, is controlled for. Girls who had older partners (more than 5 years older) were significantly more likely to have been pregnant (41.5%) than those whose partners were within the same age range as the girl (20.0%) ($p<0.001$). Amongst the out-of-school girls, 19 girls had one child and 2 had two. One girl in school had a child.

Of all girls who had ever had sex, 23.2% (20.2, 26.2) reported having a previous abortion. Most (87.1%) of those who reported having been pregnant had had at least one abortion (80.8, 93.4). Significantly more girls in the community survey who had ever had sex (n=247) admitted to having an abortion 38.9% (32.8, 45.0) than those in school (n=524): 15.8% (12.7, 18.9), an effect which holds even when age is controlled for ($p<0.001$). 78.8% (72.8, 84.8) of all girls who had an abortion (n=183) were in school at the time. Amongst out-of-school girls (n=97), the number in school at the time of their abortion was 62.9%. 60.8% said that they terminated the pregnancy to stay in school. Figure 4-12 gives the number of abortions reported for each girl who had ever terminated a pregnancy. Most had only had one induced abortion (78.7%).

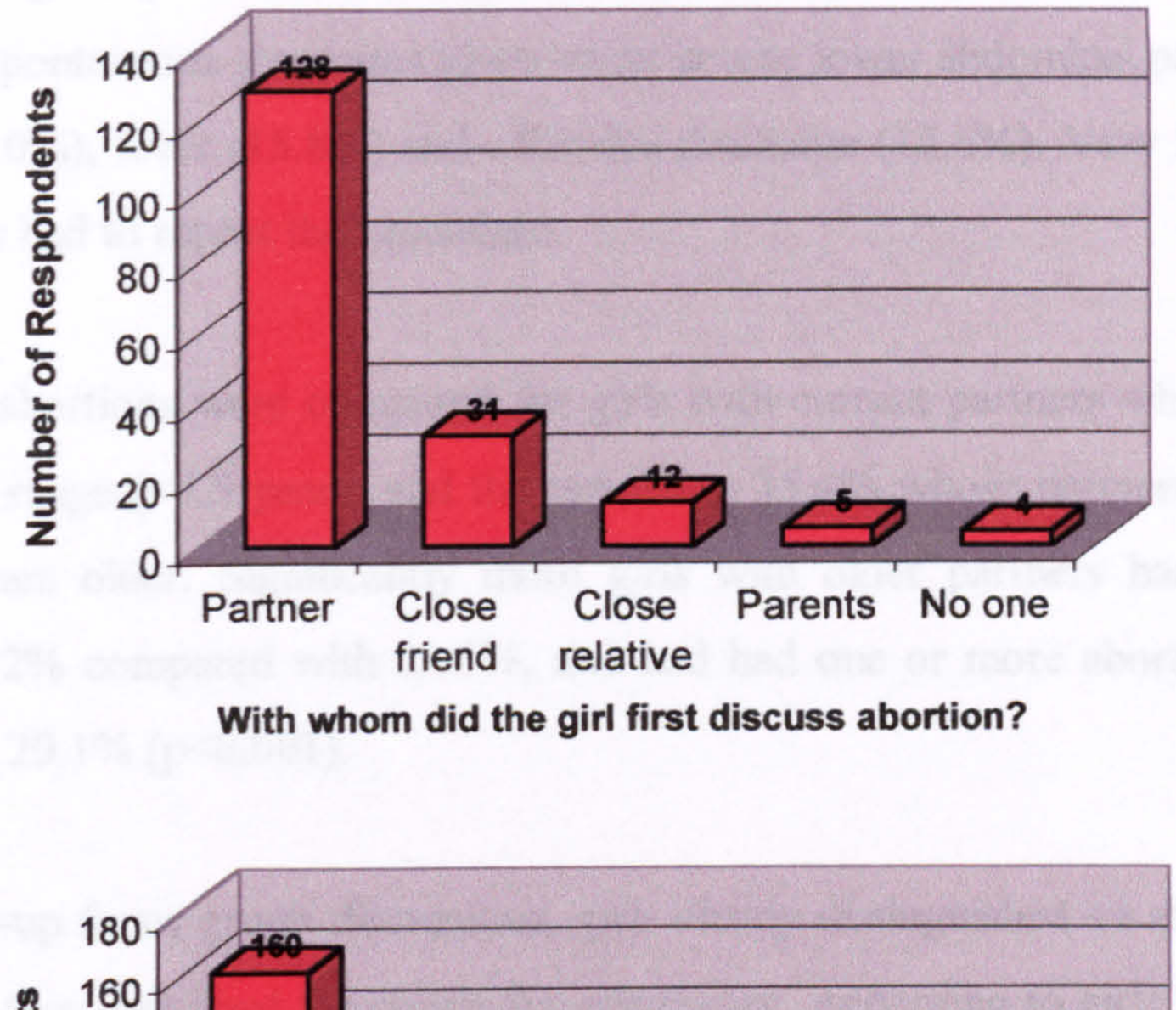
Figure 4-12: Total numbers of abortions reported by girls who ever terminated a pregnancy

(n=183) 1 missing value



The figures overleaf summarise the details given by girls about their last abortion. Most terminations 87.4% (82.6, 92.2) were conducted in private clinics. Partners played a significant role in many instances, both in being the first person that the girl turned to (69.9%), and the person who paid most for the abortion (79.8%). Parents' involvement was surprisingly low. Few were consulted either first (2.7%) or second (4.4%) or paid for the termination (2.7%). 58.5% of girls said that something was put inside the vagina during the abortion and many specified a medical instrument.

Figure 4-13: Details of last abortion by girls who ever terminated a pregnancy (n=183)



According to the survey most (90.7%) abortions were carried out within the first two months of pregnancy. Girls were asked if they had any complications following the procedure. Spontaneous responses given were: severe lower abdominal pain (34.4%), bleeding (18.0%), fever (15.8%) and offensive discharge (12.6%). Very few girls (6) said that they had to repeat the procedure.

Findings on abortions were compared for girls with current partners who fell within the standard range (<4.9 years) and the remaining 35.4% whose partners were more than five years older. Significantly more girls with older partners had ever been pregnant 41.2% compared with 22.3%, and had had one or more abortions, 35.6% compared to 20.1% ($p<0.001$).

From follow-up focus group discussions, girls clearly distinguished an abortion from the methods they described for preventing pregnancy. According to girls "prevention" of pregnancy takes place either immediately after sex or when the first period is late, and involves a range of patent and traditional medicines. In contrast, an abortion is sought when the pregnancy "has taken hold" (defined by girls when probed as two months missed period and other physical signs of pregnancy). An abortion was not considered to be a routine method of birth control and was very clearly viewed as the last resort when all other methods failed. An abortion was described in focus groups as a D&C or similar procedure.

CHAPTER 5 - DISCUSSION

5.1 INTRODUCTION

Discussion of the findings of this study requires a consideration of the limitations imposed by the study methodology. The methodology of what is described as the 'social' study is complicated, because it is a component of a wider multidisciplinary project, and because its framework was set at the outset of the project. The methodology of the wider project was driven by the project's objective to determine the prevalence of STI in adolescent girls. As a consequence, all research teams were required to jointly conduct the survey of sexual behaviour, clinical signs of reproductive morbidity and STI. Qualitative and participatory approaches were subsequently used, but within the positivist framework to clarify survey data.

The underlying assumptions and positivist approach to the wider study are the subject of a broader critique in Chapter Six. This chapter commences with a discussion of the immediate limitations of the methodology, in order to provide an indication of the validity and truthfulness of the findings. The main findings of the social study are related to other studies of adolescent health in the second part of the chapter. This discussion is divided into two parts which relate to the study objectives: first is a discussion of the assessment of the prevalence of STI, pregnancy and abortion, whilst the second part discusses the 'risk' of unwanted health outcomes of sexual behaviour. Finally, tentative recommendations are made as to how the study findings might be applied to reproductive health programmes for adolescents in Nigeria.

5.2 LIMITATIONS OF THE METHODOLOGY

Study Sites

This study investigates sexual behaviour in two populations of adolescent girls. The samples are drawn from rural and urban communities, and it is therefore tempting to draw rural-urban comparisons. However, such comparisons are problematic on several grounds.

The communities were selected on grounds of accessibility and permission given by stakeholders and assumed to be reasonably representative of rural and urban communities within Rivers State. K'Dere, however, is far from any image of an timeless rural community unexposed to the processes of 'modernisation.' It has had substantial exposure to the oil industry, and the community was actively involved in environmental protest at the time of the study. A substantial proportion K'Dere's population has emigrated to Port Harcourt, which is also a source of much work for the community, and a large seasonal migration to fishing communities in Cameroon also takes place.

This is not to say that K'Dere is unrepresentative of rural communities in the Niger delta but a formal rural-urban comparison would require a different study design, involving random sampling of several rural and several urban communities. Given that the study is both sensitive and technically demanding, this formal comparison was not feasible. The overall design for this study is complicated, comprising different sampling strategies, survey instruments and qualitative follow up. The urban survey benefited from the experience and skills gained in the rural survey, and in terms of the survey data, is much richer. The discussion of rural-urban community differences in the findings (following) are made on the basis of differences between the two communities, and are not assumed to represent rural-urban differences in general.

Studying Sexual Behaviour

The HIV pandemic has fuelled recent public health interest in research into sexual behaviour. In their review of the use of structured interview surveys to study sexual risk behaviour, Dare and Cleland (1994) suggest that surveys on sexual behaviour can be conducted in most settings provided that the elementary precautions of community access, confidentiality, privacy and tactful interviewing are observed. Pickering (1988) piloted different methodologies to ask questions of sexual behaviour and suggests that discussion openers seem to put respondents more at ease with the subject matter. The Methodology Chapter outlines the measures that were taken to access adolescents, to uphold ethical principles, to ensure confidentiality and privacy and to train the interviewers to ask sensitive questions. In addition 'adolescent-friendly' techniques were used, or developed, in order to put respondents at ease. These techniques probably enhanced the acceptability of the research to respondents. However, there remained limitations to the methodology, in terms of validity and reliability for the quantitative surveys and the trustworthiness of the qualitative research. These are discussed in the following sections.

Validity and Reliability in the Rural and Urban Surveys

External Validity

The term validity refers to how accurately an instrument measures what it purports to measure. In the epidemiological literature there are different types of validity. External validity refers to comparisons of results with independent external sources of information, and depends on factors such as sampling strategy and non-response. Internal validity encompasses the concept of truthfulness of self-reports of sexual behaviour (Dare and Cleland, 1994). Means of checking self-reports of sexual behaviour, either through biomedical markers or observation, are limited. More acceptable ways of assessing the truthfulness of self-reports of sexual behaviour include triangulation of data from different sources.

A detailed discussion of the key findings in comparison with other studies of adolescents is presented in Section 5.3 below.

The Rural Survey comprised a total population; therefore a sampling strategy was not required. However, it is important to ascertain a response rate to give a measure of participation in the study. There were problems in determining the population size of the community. The most recent census was conducted in 1991, but at the time of the study these results were unavailable. The most recent figures available to the researchers were from the 1964 census. It was for this reason that a rapid census of women was conducted. This proved to be problematic since it was conducted over four weeks during the daytime. Many women were not present in the compound at the time the enumeration team visited. In addition enumeration was carried out in October and November 1992, and the survey commenced in February 1993. When the survey started it was found that there had been a change in the population of women resident in the community. Some women had either come from the Cameroon[48], for example, or had moved away.

The reported response rates of 88% of all eligible women over 20 years and 93.4% of all eligible adolescents were calculated using updated lists from the time of the survey. The non-response rate is therefore very low for both older women and adolescents. Non-responders were followed up to find out their reasons for not taking part in the study. Different reasons were given, but it was felt that non-responders did not differ significantly from responders in terms of socio-demographic characteristics.

In the Urban Schools Survey the strategy was stratified random cluster sampling from the three senior years (SS1, SS2, SS3) in the five schools in and around the Orogbum community. Classes were selected proportional to size such that the overall number of

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[48] K'Dere, the rural community has five satellite settlements in the Cameroon. Many residents, both male and female spend at least part of the year in Cameroon, fishing and trading fish.

girls in each year strata was proportional to the total number of girls in that year over all the schools.

The external validity of the Urban Survey is more difficult to assess than that of the Rural Survey. The strategy of recruiting adolescents primarily in schools, rather than in the community, was adopted because it was thought to be too time consuming to recruit enough adolescents through a house-to-house survey or through community-based youth groups. The aim of the community-based survey was to provide a comparison of out-of-school girls, but it was found that most eligible girls had attended school, many to secondary level. Overall the number of respondents in the urban survey who had attended school was therefore very high; 81.5% of respondents in the community survey had attended some secondary school. In comparison, the 1990 DHS reports low national figures for school attendance amongst adolescent girls (nationally, only 30.0% of urban young women aged 16-20 years were currently attending school).

The schools survey may not necessarily represent school-going adolescent girls from Orogbum for several reasons. The selection procedure for admission to secondary schools in Port Harcourt is based on exam results, and therefore pupils travel from all over the city to attend school. It was assumed by the researchers that girls would choose to attend a school near to their home. However, according to the responses only 34 girls (3.1%) in the schools survey actually lived in Orogbum.

The estimate of the response rate for the schools survey is tentative because of inaccuracy of the sampling frame and because non-response was difficult to interpret. In the larger schools it was difficult to obtain current class lists. Although each class list was updated at the time of the survey, it was difficult to distinguish between 'normal' absenteeism and those who were absent because they knew that their class was going to be involved in the survey. A few girls came to the research team to say openly that they did not want to take part in the study, but they seemed to be the

exception. When girls who had not attended the clinical interview were followed up in the classrooms, some climbed out of the window to avoid being questioned. There also seemed to be a small but consistent number of girls who had been seen that day but could no longer be located on the premises. The following table summarises each of these possible expressions of non-response:

Table 5-1: Response rate of all eligible girls for schools survey

	Number	%
Interviewed	1081	81.1
Absent on day	164	12.3
Refused to be interviewed	40	3
Could not be located	32	2.4
Reported to have left the school	16	1.2
Total	1333	100

Even if all reasons for absence are taken as an expression of non-response, then the response rate was still high. Over 80% of eligible girls took part in the survey. Reasons for non-response were difficult to determine. It is clear, however, that non-response was expressed as deliberate avoidance on the part of several girls. Lack of knowledge of the reasons behind this act represents a potential limitation of the study.

In the Urban Community Survey the sampling strategy was based on random cluster sampling. There are several potential causes of bias which could undermine the validity of the findings. Notably it was discovered that one of the community fieldwork teams was fabricating data. Their data was excluded during in the analysis, reducing the achieved sample. In the sample there is some 'heaping' of 19 year olds (shown in Figure 4-6 in the Results Chapter). This may reflect in part the composition of the community, since these girls have just finished school, but is also likely to reflect enumerator bias in the recruitment to the study, i.e. that fieldworkers included women over 19 years age in their

clusters but recorded them as 19 year olds. This phenomenon is also reported in the Nigeria DHS (1990).

In the community survey, the total eligible population is estimated to be 467 girls[49]. The response rate of the eligible girls to the invitation to take part in the study and attend the 'Drop-in-Centre' (to have an interview and clinical examination) was not high (42.0%), such that the prevalence of STI reported in the community survey should be treated with caution. However girls who did not attend the centre were followed up in their homes by a peer interviewer who conducted a social interview if the girl agreed. If all girls who had a social interview in their homes are included, the response rate for the social questionnaire of the community survey is reasonable (71.9%), but not as high as the school or rural surveys.

The demographic characteristics of the 28.1% of non-responders in the community survey are not known. During recruitment it was difficult to register house girls since the key informants in the household often did not mention them spontaneously. During the data collection stage the field team frequently had to follow them up, and in some cases ask permission from the girls' 'madam' if she could attend the health centre. House girls in Port Harcourt usually come from rural areas and have lower socio-economic status than the households in which they live. This socio-economic bias in the sampling for the urban study may affect some of the findings.

Internal validity of the questionnaires

The Principal Investigators designed the rural survey questionnaire, which was pilot tested in Port Harcourt Teaching Hospital. The questionnaire was amended based on this piloting, but there remained several limitations. The questionnaire was not based on detailed knowledge of the area or prior qualitative research. It is unlikely, therefore, that all responses to closed questions were covered. Questions did not

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[49] Estimate made from code numbers for the community survey

cover specific information on sexual behaviour, such as number of sexual partners or frequency of intercourse, which would have provided information on epidemiological risk factors for STI. The questionnaire was written in English. Before the survey the nurse midwives looked at the questions in detail and a format in Gokana was agreed upon, but the translation was never written or back translated to check the meanings. It is likely that there were minor changes in the wording of questions with different respondents, which may have influenced responses.

A couple of specific questions seemed particularly unreliable. In the rural survey there were significant numbers of women, particularly older women, who did not know their age. A local calendar of events was constructed to provide a rough guide to women's ages, as described in Methodology section 3.4). It is likely that the division between adolescents and older women is reasonably accurate, but other age groupings may not be trustworthy.

The frequency of sexual intercourse in the last month was asked in the rural re-interviews. However, preliminary analysis of the data showed that answers generally reflected an estimation of a weekly average, rather than actual recall. Unfortunately, given the limitations of time available, the question was abandoned. The frequency of sexual intercourse is one of the primary epidemiological indicators for risk of STI and for adolescents, and, in retrospect, may be much more reflective of sexual activity than 'ever' having sex (discussed in section 5.3 below). Problems of this nature might have been avoided by exploring issues qualitatively before the survey instrument was designed, and by more extensive piloting of the questionnaire.

In the urban study, the questionnaire design was based on the findings and experience gained in the rural study. The questionnaire was more comprehensive than the rural questionnaire in its scope and depth. In particular, the question on contraception was modified to include the phrase used by local adolescents to mean "prevention of pregnancy". This resulted in a much wider report of the range of 'contraceptives'

used by adolescent girls. The questionnaire was pilot tested comprehensively before it was administered. It is felt that the urban social questionnaire was internally more valid than the earlier rural questionnaire. However it is accepted that the use of questionnaires to investigate sexual behaviour are limited, and a more detailed examination of the survey method and its relation to sexual behaviour research is given in Chapter 6 of the thesis.

Survey findings were triangulated with data from different sources, such as focus group discussions and in-depth interviews. Following the urban survey there was an extensive dissemination phase in which findings were discussed with adolescents and other community members. Data seemed consistent from the different sources, within the limitations inherent in each method. For example, focus group discussions do not lend themselves to eliciting personal information about sexual behaviour and are more likely to reflect social norms and values.

Truthfulness

Several measures were taken to try to enhance the truthfulness of responses.

Interviewer Effect

There are different thoughts in the literature about who should conduct an interview on a sensitive issue. Lee (1993) reviewed the interviewer effect in research on sensitive topics and concludes that, as a rule, it is preferable to match social characteristics of respondents and interviewers. Senshul *et al.* (1994) suggest that in deciding who should collect data on a sensitive issue, the investigator should consider how an informal discussion might be bounded by social distance such as age, gender or occupation. Not all investigators concur that interviewers should be the same sex as respondents. Pickering (1988) argues that although it is generally recommended to match respondents and interviewers in structured surveys, it does not always hold true for sexual behaviour research. She suggests, for example, that if young men believe that having many sexual partners provides social kudos, they are more likely to exaggerate their behaviour to male interviewers. Stanley and Wise (1983) suggest that it is the skill of the interviewer, rather than other characteristics such as gender, which is important.

In Nigeria, Becker *et al.* (1995) examined the effect of the sex of interviewers on the quality of data in a Nigerian Family Planning Questionnaire administered to women. They concluded that responses to the questions were not significantly different for interviewers of either sex. However, their data shows that in two of the study areas about double the number of reports were made about children who had died to female interviewers than to male. It is recognised that child mortality is a sensitive issue and methods of indirect estimation are widely applied. The data presented by Becker *et al.* suggest that female interviewers may be more successful at eliciting sensitive information from women.

In the rural study the interviewers were middle-aged female nurse-midwives, and it was clear that some of the adolescent respondents were not comfortable in the interviews. This is likely to have influenced the truthfulness of their responses.

In the Urban study it was decided to use 'peer' interviewers (aged 18-21) to ask questions about sexual behaviour. Peers immediately overcame the social constraint concerning talking about sex with elders, and used the language of sex employed by adolescents. The peer interviewers had to overcome their own inhibitions about talking about sex, in addition to learning non-judgmental interviewing skills. Respondents in the urban study seemed more comfortable in these interviews.

Introduction of Respondents to the Topic of Sexual Behaviour

Pickering (1988) reports that in her experimental design to test methods for asking about sexual behaviour, responses to structured questionnaires were more comprehensive when they followed a group discussion. In the rural study, meetings were held with church groups and community leaders to raise awareness, but this introduction did not allow respondents an opportunity to talk about sexual issues before individual interviews. In the urban schools survey, much time was devoted to introducing the study and the topic to each class. After an initial introduction, classes watched the film 'Consequences' about teenage pregnancy, which served as a discussion starter about sensitive topics, allowing respondents to use language about sex and the facilitator to "give permission" to talk about sex openly. In the urban community survey, the 'Drop-in Centre' showed films continually (including a film made by the team on the 'safe period'), as well as displaying posters and leaflets. All focus group discussions commenced with a discussion starter such as an exercise to say all the words that the group knew for 'sexual intercourse'.

Estimates of Truthfulness of Responses

A sub-sample of women was re-interviewed in the rural area to elicit further information on their sexual history. This re-interview acted as a test-retest comparison

and served as an indicator of the reliability of responses. The data suggest that in the main survey there was significant underreporting of sensitive issues such as the number of induced abortions; 41% of adolescents who initially reported no abortion or did not respond to the question later admitted to an abortion.

No test-retest comparison was conducted in the urban study. A self-administered questionnaire was designed and given to a sub-sample of adolescents, but it was felt that the overall comprehension of this questionnaire was low and that it would require further development to be used successfully[50]. However, the same question about whether the girls had ever had sexual intercourse was asked on three occasions: once by the peer interviewers, once by the clinician administered the clinical questionnaire and finally by the second clinician who examined the girl. The consistency of responses was tested for the schools survey. The agreement between the responses to the peer interviewer and the first clinician was moderate (kappa statistic 0.57), between the first and second clinicians good (kappa 0.71).

The measures of reliability are only able to demonstrate whether the respondent is being consistent between responses, rather than if they are telling the truth. Most survey research, and indeed many other methods, relies on the goodwill of respondents to tell the truth. The verification of responses is difficult since research into sexual behaviour relies on reported behaviour rather than observation. Inter-partner comparisons have also been used, but they are potentially divisive and some researchers avoid them for this reason (Orubuloye *et al.*, 1992). In her review of methods to investigate sexual behaviour, Pickering notes that about half of the adult women respondents did not appear to give true answers to the questions about sexual behaviour. Men, and women prostitutes, seemed to enjoy the interview more and to provide more truthful answers. In another example, Bleek (1987) was able to check

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[50] In the Urban Dissemination Phase a pictorial "Secret Questionnaire" was developed to ask adolescents about sexual behaviour. The questionnaire was self-administered and required the respondent to circle pictures in response to questions. The questionnaire was much easier to comprehend and may be a useful tool to monitor behavioural change in adolescent programmes.

the responses to a questionnaire with ethnographic research from two lineage groups. Some women in the lineage groups were also attending a child health clinic where a questionnaire was administered about pregnancy and abortion history. Some widely disparate findings between women's responses to a questionnaire and their known personal histories led him to conclude:

> Interviewers who ask personal questions about delicate topics, sometimes with more sense of duty than common sense, force polite informants into lying ones. (Bleek 1987: 314)

In this study there is no available mechanism to ascertain the truthfulness of responses. Based on the experience gained in conducting the research, the author concurs with Pickering, who argues that the researcher can only judge by 'appearances' if the respondent is replying truthfully or not (Pickering 1988). The strategy of the urban survey in particular seemed to provide a comfortable setting and seemed to be 'adolescent-friendly'. From observations of interviews, the responses are *likely* to be truthful, and data are probably more truthful than those gained from the rural survey.

Validity and Trustworthiness in Qualitative Research

Validity in quantitative research depends on factors such as: the careful and consistent measure of variables; the sampling strategy; the reliability of the measurement; the objectivity of the researchers, and the process. In contrast, in qualitative research the researcher is the instrument and therefore the validity or trustworthiness of the study depends to a greater extent on the skills, competence and rigour of the person doing the fieldwork than on the techniques used (Patton, 1990). This study represented the first qualitative investigation by the author, a factor which is likely to have a significant influence on the trustworthiness of the account.

Descriptive Validity

Descriptive validity refers to the factual accuracy of the account (Maxwell 1992). Rural In-depth Interviews were conducted by the author through a translator (a young female teacher from the community). It was clear from some of the responses during the interview that the meaning had been lost in translation. Furthermore the respondents knew the translator and her presence is likely to have influenced the truthfulness of the responses. Focus group discussions were conducted by the author or one of the fieldworkers (with the author as an observer). The probing skills of both the author (for interviews/FGD in Pidgin) and field workers (for interviews/FGD in Gokana) were not well developed so many interesting lines of enquiry were not followed up. Ideas expressed by the respondents were not often checked and clarified at the time of the interview or during the period of data collection.

The sampling strategy was altered for the focus group discussions after it had been found that recruiting respondents who did not know each other seemed to elicit responses that reflected social norms, rather than information about the actual behaviour of young people. The sampling strategy was altered so that key contacts were recruited first. They were asked to find a small group of 6-10 friends who they thought might be at ease in a group discussion about sexual matters. It was found that

this 'friends' method produced focus groups that were much more relaxed, and the author felt the information given was more truthful.

All interviews were taped and transcribed, and notes taken after the interview, but many observations made during the interview were not recorded. The transcripts of the FGD give little, if any, information on the general agreements or disagreements shown by non-verbal responses.

Analysis was not carried out during the data collection phase and was left for a long time after data was collected. By the time the data was analysed, it was too late to investigate gaps in the data or to clarify terms or issues.

Interpretive Validity

Interpretive validity is the trustworthiness of the analysis and description of the findings by the researcher. In this study the only person involved in the analysis of the qualitative data was the author. This included the development of the framework for analysis, the coding of transcripts, the summary of themes and sub-issues. There was no crosschecking with respondents that the account accurately represented their views. In the dissemination phase of the urban study, there was an opportunity to feedback the overall study results and discuss some of the issues, but this was limited to key findings. In such cross-cultural research it is important to involve both respondents and other team members in interpretation and analysis. The qualitative findings are therefore limited in this study.

Qualitative methodology depends on reflexivity and on the skills of the interviewer. In this study the interviews and focus group discussions were quite standardised and did not allow the development of ideas. This limitation was accentuated by conducting the analysis a long time after the data had been collected.

5.3 Discussion of the Findings

Sexual Behaviour

In the Rural and Urban Surveys, sexual activity was measured by asking respondents 'Have you ever had sexual intercourse?' 60.2% of rural and 54.8% of urban girls responded positively to this question. These figures are consistent with the DHS for Nigeria (1990), which estimates that 55% of 15-19 year olds are sexually experienced (although this figure includes more adolescents who are married). Although direct comparisons are problematic because of differences in study design, the rates found in these two surveys are generally higher than those reported by other studies of adolescent sexual behaviour in Nigeria. Of those studies which include comparable age groups, Amazigo *et al.* (1997) report that 40% of school-going adolescents (both male and female) had ever had sex; Oloko and Omoboy (1993) report 40% amongst school attenders (both male and female); Odunjinrin (1991) reports 29% amongst school girls; and Nichols *et al.* (1986) 38.4% amongst school girls and 59.9% amongst school boys.

Unsurprisingly, the number of girls who have ever had sex increases with age in both communities. In the rural community 43.6% of under-17 year olds and 80.1% of 17-19 year olds report ever having sex. In the urban study the figures are 38.5% and 69.2% respectively. A higher proportion of out-of school girls reported ever having sex, but this was consistent with the older sample in the community survey.

The use of 'ever' having sex as a proxy for sexual activity in this age group is problematic. Asking about 'ever' engaging in a sexual activity is a barrier question[51] and more difficult to elicit a truthful answer if it contravenes social mores (Stanley 1995). In the studies of sexual behaviour in the States, Kinsey developed ways of

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[51] Requiring an answer of either yes or no.

overcoming barrier questions by asking 'how many times' a respondent engaged in a particular activity (Stanley, 1995). A study in the United States compared the measure of ever having sex with 'sexual activity' (a measure of how regularly respondents have sex) for different population groups. It was found that adolescents reported the least regular sexual intercourse and the highest level of abstention from sexual intercourse of all age groups (Aral *et al.* 1988). This suggests that 'ever' might give a false impression of the sexual *activity* of adolescents.

Although the study does not examine this question directly, other data support the notion that adolescent girls' sexual activity might be sporadic. In the Rural Re-Interview sub-sample of 43 'sexually active' girls in the rural community, 7% had not had a sexual relationship in the last year. In the urban study, of all girls who reported ever having sex, 6.6% had not had a sexual relationship in the last year and 12.4% had not had a relationship in the last three months. 9.6% of respondents in the urban survey reported that after their first sexual encounter they did not have sex again with their sexual partner. A question on the frequency of sexual intercourse was asked initially in the Rural Re-Interviews, but the responses were found to be unreliable and the question was later abandoned. Furthermore, if girls do engage in sporadic sexual relations, a measure of frequency (number of sexual encounters per unit time) is likely to mask the real patterns of sexual activity. The one-off survey does not lend itself to measures of the frequency of sexual intercourse due to problems of memory recall for respondents. Several investigators have recommended the use of the sexual diary to give a more accurate picture of sexual behaviour (Coxon 1996, Fortenberry et al 1997). This is a method that may be more appropriate for investigations into the sexual behaviour of adolescents[52].

The age of first sexual intercourse was consistent with the overall DHS figures for Nigeria, but is lower than the age reported by the DHS for urban populations of

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[52] This method was employed in a subsequent PhD study of the sexual behaviour of college students in Port Harcourt by Annette de la Court, LSTM.

women (DHS, 1990). In the DHS, the median age at first intercourse for all women was 15.9 years, with variations by rural or urban residence (15.7 years and 17.4 years respectively). In the urban study[53] the mean age of first sexual intercourse is 15.6 years from girl's recall of age at first sex, compared to a mean age from current sexual status of 16.0 years. The lower reported age of first intercourse found by this study compared to the DHS urban figures is likely to reflect the differences in the methodologies used to ask this question. Specifically, in this study methods were geared towards a predominantly unmarried group of adolescent women within one State of Nigeria, whereas in the DHS adolescents form only a fraction of the total respondents, and the survey covers all of Nigeria with diverse populations in terms of ethnic groups and religion. (For comparison, the National Survey of Sexual Attitudes and Lifestyles in Britain (1994) found that the median age of first intercourse for people aged 16-24 years was 17 years.)

Focus group discussions in the rural community point to noteworthy gender differences in the reasons why young people enter into sexual relationships. Boys enter relationships because they like the girl and for sexual satisfaction. In addition to liking boys, it was perceived that financial support was one of the main reasons why girls, particularly less well off girls, enter sexual relationships. Financial support could take the form of gifts or, more substantially, of support towards education. The concept of gift-giving in sexual relationships is well described in literature from West Africa in general (Van Oostrum, 1989 and Bledsoe, 1990b) and in Nigeria specifically (Wa Karanja, 1987; Barker and Rich, 1994; Oyeneye and Kawonise, 1993). Reliance on a sexual partner for financial support alters the terms of the sexual relationship and the relative power of the young woman to negotiate whether to have sex and whether to use contraceptives or a condom. In health terms, therefore, dependence on a sexual relationship for financial support may influence the vulnerability of the girl to the adverse health outcomes of sex such as STI and unwanted pregnancy. (The

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[53] Specific questions on age at first sexual experience were not asked in the rural study.

construction of risk for adolescent women in sexual relationships is discussed further in Chapter Six).

Descriptions of first sexual encounters in both studies, rural and urban, give an indication that sexual intercourse may be perceived as something a boy initiates. In descriptions of their first sexual encounter given by ten women in the Rural In-depth Interviews, it was normally the partner who initiated contact with the girl and suggested the relationship. Typically respondents said that they were afraid to have sex the first time. Four out of the ten respondents described how their partner employed physical force to insist that she had sex. Surprisingly, after being afraid or forced to have sex, all but one respondent continued the relationship with their boyfriends. The Urban Survey responses suggest that men initiated 43.5% of first sexual encounters with the girls' agreement. A further 3.4% of girls had not agreed to have sex the first time, and several went on to describe how they were forced to have sex. This included several circumstances that the girls themselves identified as rape.[54] However, none of the incidents were reported to the police or to other authorities. Informal conversations at the time suggested a popular perception that wider knowledge or publicity about a rape would spoil a girl's reputation making it difficult for her to marry in later life.

Boys' or men's use of coercion and rape to have sexual relations with girls has been mentioned in studies from other different parts of Nigeria. Orubuloye *et al.* (1991) report that some female respondents said that their first sexual experience was under physical duress, or to please an employer or teacher. In a follow-on study with men, Orubuloye *et al.* (1992) found that 3% of male respondents said that they were guilty of rape, and a further 1% that they had used physical duress to have sex. Dare and

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[54] Although there is little doubt that some of the girls had been raped, there is difficult in interpreting girls' statements in this, or any other, cultural setting. A discussion of the complexities of the debate on rape and the discourses of sexuality is beyond the scope of this thesis.

Cleland (1995) found that 6% of women said that the first time they had sex they were forced.

There is an underlying assumption in much of the sexual behaviour research in sub-Saharan Africa that sexual relationships are consensual (Standing, 1992). This study of adolescent sexual behaviour is not alone in making this assumption, but in context, it is dangerous. The research team were unaware at the outset of any counselling services, and did not discuss what should happen in situations where respondents became distressed by recalling painful incidents. Furthermore the interviewers, who were themselves young adolescent women, were put in the position of asking sensitive questions, to which there were distressing responses, without a support strategy put in place beforehand.

Prevalence of STI

Few studies have reported STI rates amongst unmarried adolescents in developing countries. Adolescents, if they are included, are usually married and recruited through health facility attendance. However, what information is available suggests that the peak incidence of STI in most settings is found amongst young people, particularly 15-19 year olds (WHO, 1993b). In the Rural Survey the prevalence of STI was higher amongst adolescents and young women than amongst older women (Brabin *et al.* 1995 – included as Appendix 12). If only sexually active adolescents are considered, then adolescents aged 17-19 years had the highest prevalence of chlamydia (10.5%), and girls aged less than 17 years had the highest prevalence of trichomoniasis (11.1%). The prevalence of gonorrhoea was highest in the 20-29 years age group (2.9%), and the prevalence amongst sexually active adolescents was 1.7%. The highest prevalence of syphilis was found amongst older women, which is consistent with WHO estimates that the prevalence is generally higher in people over 25 years (WHO, 1993b).

The prevalence of STI was lower amongst adolescents in the urban community than amongst those in the rural community. The STI rates were gonorrhoea, 2.1%; chlamydia, 1.7%; and trichomoniasis, 9.0%. This is not the pattern generally observed since urban STI rates are usually higher than in rural populations (WHO, 1993b). The rates of STI in both rural and urban communities in this study are higher than those reported for young people in motor parks in Ibadan by Dare and Cleland (1994). The rate of trichomoniasis infection is lower than the 39.8% reported for adolescent women in a higher education institution in the town of Owerri (Anosike *et al.* 1993). These authors employed both urine testing and vaginal swabs to test for trichomoniasis, compared to the sole use of vaginal swabs in this study, which may partially account for the different results.

STI rates found in the Urban Study were unexpected; indeed the survey sample size calculations assumed a 10% higher prevalence of STI in the urban area. It is unlikely that the lower prevalence was due to the testing procedures since the same techniques and quality assurance mechanisms were used in both rural and urban studies. It is possible that the urban study design biased the selection of respondents in favour of adolescents of higher socio-economic status. The reported prevalence of STI in the urban area relies heavily on the school-based study because the number of girls tested for STI in the community survey was relatively small. It is clear, therefore, that there is selection for girls whose circumstances allow them complete their secondary education. These circumstances might include relatively high socio-economic status as girls of lower socio-economic status are more likely to drop out of school earlier or not attend school at all.

Models of transmission of HIV and STI are based on open sexual mixing patterns (Anderson 1992) but recent studies of sexual networking suggest that people may choose their sexual partners from a limited group or network (Pickering *et al.* 1996; Oruboloye 1992). This has interesting implications for the risk of HIV/STI within the network. If there is no STI within the sexual network then individuals will not be at

risk, regardless of their individual behaviour, whereas a high prevalence within the network will increase the risk of the individual of acquiring the infection. Differences in the STI rates in the sexual networks of rural and urban adolescents may explain the observed differences between rural and urban communities. Networks might be based on broad social divisions such as socio-economic status. This hypothesis is speculative and would require further investigation.

Focus group discussions in the rural community revealed that both male and female adolescents were aware of STI, particularly the signs and effects of HIV/AIDS. This is surprising since, at the time, the prevalence of HIV in Nigeria was believed to be low (national rate of 3.8%, Olalele *et al.* 1993)).compared to Southern and Eastern African countries, and few people had seen others suffering from HIV. Knowledge of other STI was variable and individual respondents mentioned some illnesses that are not sexually transmitted such as tuberculosis, small pox, and malaria. Local diseases such as 'komkegba' and 'sikiribop' were described, and were thought to be the same or similar to gonorrhoea and syphilis respectively. This is an example of a situation in which emic categories of illnesses may not necessarily correspond with scientific categories of disease. Understandings of the aetiology of komkegba and sikiribop, their causes and treatments were not investigated. Such local understandings may affect treatment-seeking behaviour and would be worthy of further exploration.

The frequency of girls' reports of vaginal discharge was striking: 82.4% in the rural community and 48.2% amongst urban girls who had had a clinical examination. However, few girls had sought treatment for these symptoms. Girls in focus group discussions mentioned an STI they called 'vaginal scratch'. The symptoms they mentioned are similar to those of candidiasis: white itchy discharge. Candidiasis is caused by an overgrowth of normal flora in the vagina and is not necessarily sexually transmitted. In both rural and urban studies the prevalence of symptomatic candidiasis was quite high: 23.4% amongst rural adolescents and 10.2% amongst urban adolescents.

Significant numbers of girls in both communities had an STI which could lead to long-term negative health consequences if left untreated, such as chlamydia or gonorrhoea. Most of these cervical infections are asymptomatic so it is unlikely that girls would have sought treatment. Even when young women reported a vaginal discharge which they thought was an STI ("vaginal scratch"), few sought treatment. In any case, evidence from the focus group discussions suggests that young women are not likely to seek health care from public health services. Together these factors make strategies for the treatment of STI in young unmarried adolescents difficult to implement.

Assuming that girls did seek treatment for symptoms of vaginal discharge, the recommended algorithms or flowcharts for the treatment of STI would seem to be inappropriate for this population. According to the WHO flowchart for the syndromic management of vaginal discharge (Figure 2-1), being aged less than 21 years and single are sufficient criteria to treat for gonorrhoea or chlamydia if the woman complains of vaginal discharge. In this study all girls were under 21 years old and most were single. Use of the WHO flowchart would therefore have resulted in the treatment for gonorrhoea or chlamydia of 82% of all girls in the rural community and 48% in the urban study. (The flowchart neglects to ask if the woman has ever had sex).

Prevalence of Pregnancy

In both studies the rates of reported pregnancies were high: 39.1% of sexually active girls in the rural community and 26.3% in the urban study reported ever having been pregnant. 24 of the 25 women who reported having children were out of school. Significantly more out-of-school girls had been pregnant than in-school girls, a factor that was not related simply to age, but may be related to the fact that out-of-school girls had finished their schooling. It may well also be exacerbated by the fact that girls are generally obliged to leave school if they become pregnant. Evidence suggests that

the fertility rate amongst adolescents is declining slowly in Nigeria and this is likely to be associated with a rising age of first marriage and increased educational opportunities for women (Bledsoe and Cohen, 1993).

Prevention of Pregnancy

Reported modern contraceptive use amongst this group of adolescents was very different between the two communities. The reported rural community use of 5.3% was consistent with the reported 4% of 15-19 year olds nationally who had ever used modern contraceptives (DHS 1990). In the urban study, current use was much higher. Amongst those with a current relationship, 8.3% were using condoms and 7.5% contraceptive pills (although the extent to which these are correctly used is not known). Other studies in Nigeria report much higher levels of modern contraceptive use in this age group. For example Nichols *et al.* (1986) report that 61.2% school attenders (age 14-25) currently use modern contraception; Odunjinrin (1991) reports current contraceptive use amongst schoolgirls (aged 10-20 years) of 20.3%.

Knowledge of 'the safe period' as a method of preventing pregnancy was high, and in the urban study 19.6% of sexually active girls reported using it to prevent pregnancy. However, further probing in both communities revealed diverse views on when it is 'safe' to have sex. The most popular notion was that a woman's most fertile period falls during and around her menses. Okonfua (1991) also found that few adolescent women in his study in Osun State could correctly identify the fertility cycle. Beliefs about menstruation, including sexual relations during menses, were not probed in this study[55].

Perhaps the most surprising finding was the range of products adolescents in both communities cited as means to prevent pregnancy, and the confidence they had in their efficacy. In the urban study girls were asked about the methods they use for 'prevention' rather than their use of contraception. 27.6% of currently sexually active girls gave 'alternative', non-formal methods. Andrews Liver Salts was the most commonly used (12.1%) of these 'alternative' methods. Focus groups discussions in

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[55] This was the subject of a follow-on PhD thesis in the rural community (F.Barr, LSTM)

both rural and urban communities revealed the same methods cited by survey respondents: Andrews Liver Salts, White Quinine and Menstrogen were reported frequently. Many methods were cited in combination with each other, for example: Menstrogen and Andrews, Ampicillin and Andrews, Menstrogen and white quinine, Stout and salt, lime and dry gin. In the Dissemination phase of the urban study the Bag-of-Tricks game was played to reveal all the different methods, then girls were given bottle tops to vote for the method they thought young people use most. White Quinine was thought to be the most commonly used method. Focus group discussions in the urban study probed beliefs about the methods. Respondents reported that all the 'alternative' methods are taken orally at different times after sex, ranging from almost immediately, to when the first and second periods are missed. Girls believed the efficacy of each method varies according to how long it is taken after sex such that some methods were useful to 'wash out the sperm' and others to 'make the period come'.

Infromation about the use of a range of alternative non-formal methods for the prevention of pregnancy in Nigeria, is not new. Amazigo *et al.* (1997) found that adolescents in Anambra and Enugu knew of products such as liver salts, broad-spectrum antibiotics, gin and *akawu* (sodium sesquicarbonate) as alternative methods of contraception. Adolescents in their study also described taking the gin mixture to "wash everything away" after sexual intercourse and using liver salts to terminate a pregnancy.

Although similar substances are documented, the description of their use to prevent pregnancy or as abortifacients seems to differ in studies from other parts of Nigeria. The products reported by Amazigo *et al.* (1997) are described as preventing a pregnancy. In the study by Renne (1997) in Southwest Nigeria, a similar range of patent medicines are described as abortifacients or methods to "keep a pregnancy from staying". Interestingly in our study, girls in the urban focus groups clearly distinguished the methods they used to prevent pregnancy, including those 'to make a

period come' from 'abortion'. Girls usually thought of an 'abortion' as a D&C, which was only used as a last resort. The differences between studies may reflect a continuum of beliefs about when conception has taken place and when a girl is actually 'pregnant'. The categorisation of these methods as means to prevent pregnancy or as abortifacients may also reflect the research priorities and questions of the investigators.

One of the limitations of conducting Knowledge Attitude and Practice (KAP) style research on a topic such as this is that findings are simply a list of exotic products, named in isolation from each other. There is no in-depth information that describes case-histories of how girls have actually used the methods to prevent pregnancy.

According to bio-medical evidence, many of the methods used by girls are unlikely to be effective in preventing pregnancy. Although the "safe period" was cited as a common means to prevent pregnancy, the period that girls believed to be 'safe' includes the period of ovulation in a normal cycle, thereby increasing their risk of becoming pregnant. Some of the 'prevention' methods used by the girls, such as liver salts or salt and gin, are unlikely to prevent pregnancy, but are also unlikely to produce long-term adverse reactions. However, the same may not be true of the inappropriate used of the licensed drugs mentioned by girls: Menstrogen, Gynaecosid, Quinine, Postinol and so on. For example, in 1975 the Committee on Safety of Medicines (UK) warned against the use of Menstrogen if there is any possibility of pregnancy since it is associated with an increased incidence of congenital abnormalities. The product has since been withdrawn from sale in the UK (Department of Pharmacology, Fazakerly Hospital –personal communication).

It is not only adolescents who have confidence in the 'alternative' methods of "prevention". The advice given by local chemist shops to the 'mystery client' confirmed the general acceptance of the methods cited by the girls. Observations suggest that it is unlikely that the fieldworker was served by a pharmacist in any of the

chemist shops she visited. Focus group discussions in the urban study suggest that chemist shops are the primary source of sexual health care amongst adolescents because they are accessible, informal and cost less. In contrast, the formal health system was perceived to be intimidating and judgmental, and adolescents visiting formal health care providers ran the risk of being seen by parents or relatives.

It is perhaps to be expected that knowledge and practice of alternative methods of preventing pregnancy are widespread in Port Harcourt. There is currently no formal Family Life Education programme in schools in Rivers State, although there are moves to develop National 'Sexuality' Guidelines (National Guidelines Task Force, 1996). Information given in schools is patchy and usually limited to reproductive biology. In discussions in the community, parents admitted to being reluctant to talk about sexual health matters with their children. Advice given to girls was usually limited to forbidding them from having sex. The view that providing information about contraception only serves to give license to girls to have sex was widely held amongst parents and community groups. Young people were also unlikely to receive information about contraception from public health services or NGO-led family planning services, which were extremely unpopular with young people for sexual health problems. (One girl in the Urban Dissemination Phase remarked that if the Planned Parenthood Federation of Nigeria was aimed at unmarried girls, it should be called 'Planned Spinsterhood'). It is likely, therefore, that the main sources of information about the prevention of pregnancy for young women are peer networks and their partners.

Prevalence of Abortion

The reported abortion rate is high in both communities. In the rural area 24.1% of sexually active girls reported having an abortion, and evidence from the rural re-interviews suggests that this figure is an underestimate. In the urban area the figure is 23.2%. Figures for other parts of Nigeria vary widely. Renne (1996) reports a rate of 15.6% amongst all women in Ado-Ekiti; Nichols *et al.* (1986) report approximately 40% rate amongst never married adolescents; and Odunjirin (1991) reports a rate of 25.5% amongst sexually active girls in Lagos. National figures of abortion rates in countries where abortion is illegal are usually unreliable. However, WHO estimates that 60% of the demand for abortion in Nigeria comes from adolescent schoolgirls (Renne 1996).

The reported rates of pregnancy and abortion rely on girls' self-reports and might be questioned. Abortion is illegal in Nigeria, with the threat of a prison sentence for any woman seeking an induced abortion, which must have influenced the truthfulness of responses. What girls understood to be signs of pregnancy or what constitutes an abortion was never probed with individual respondents. In some cases the girl might not have been pregnant and there might have been another cause of the signs she associated with pregnancy. Furthermore, one in six pregnancies worldwide results in spontaneous miscarriage (Alan Guttmacher Institute 1999), so what girls report as an induced abortion might have been a spontaneous miscarriage. With these limitations in mind, in both the follow-up rural re-interviews and in the urban study questionnaire girls were asked to give more details about what they called 'abortion'. In addition, urban focus group discussions with schoolgirls probed what girls understood by induced abortion in comparison to when they used to 'prevent' a pregnancy.

Findings in this study are surprisingly consistent across both communities and suggest that what girls describe as abortion is indeed induced abortion, and in general a D & C. In the urban study the majority of respondents said that the abortion involved inserting a medical instrument into the vagina; a D&C involves inserting forceps and

curette into the uterus. Most terminations were conducted in private clinics. Partners played a significant role in many instances, both as one of the people who knew about the abortion and as the person who paid for the procedure. Parents' involvement was surprisingly low. In contrast, in her case histories of abortion amongst Ekiti Yoruba women, Renne (1996) found that parents, particularly mothers, were involved both in procuring and in paying for the abortion.

Abortion conducted in safe conditions and early in the pregnancy represents very little risk to women, and for adolescents, represents a lower health risk than pregnancy (Senderowitz, 1995). However, complications resulting from induced abortion are a significant cause of maternal mortality worldwide. WHO estimates that 78,000 maternal deaths each year result from unsafe abortion (Alan Guttmacher Institute 1999). Unsafe induced abortion can cause tears in cervix, perforation of the uterus, fever, infection, septic shock and severe haemorrhaging, which, if left untreated, may result in death (*ibid.*). In this study many girls spontaneously reported complications such as pain, bleeding, fever or offensive discharge as a result of their abortion.

Rural focus group discussions revealed that girls in particular are afraid of the potential harmful effects of abortion on their fertility and the threat to their lives. Boys were generally less sympathetic and seemed to regard abortion as the appropriate course of action if a girl becomes pregnant while attending school. Boys felt that it is the partners' duty to offer to pay for the procedure. There seems to be some shame attached to becoming pregnant while at school and a sense that the girl harms her future chances, which were defined mainly in terms of marriage rather than educational opportunities. It is not known whether the same sense of shame exists for out-of-school girls who become pregnant. The role of partners in abortion seems to be considerable and supports public health efforts to promote the involvement of men and boys in reproductive health programmes.

Risk of STI, Pregnancy and Abortion

One of the objectives of this thesis, and of the wider project, is to describe the risk of STI, pregnancy and abortion amongst adolescent girls. In the project background documents this objective is phrased as: "to understand the social factors affecting sexual behaviour, and therefore the risk of infection, pregnancy and abortion". One of the difficulties of this research derives from the fact that it was not made explicit at the outset how 'risk' or 'social factors affecting' were understood or would be measured. From an epidemiological perspective, risk and risk factors are defined in terms of chance and probability of health change due to certain factors, and can be tested statistically. The limited numbers of respondents in the surveys, and the survey designs, however, do not easily lend themselves to a multifactor risk analysis of social or behavioural factors that influence risk. Statistical testing for 'risk' of STI was limited to the urban schools survey[56] and to externally established risk factors of number of partners, age of first intercourse, etc. Despite these limitations it is clear from the findings that adolescent girls in these communities are *at risk* of STI, unwanted pregnancy and abortion. The ways in which adolescents are at risk is described in the following section, but how risk is conceptualised in bio-medical terms, or may be constructed in social terms, is the subject of discussion in the following chapter.

The focus on sexual health, particularly HIV and STI, in developing countries has led increasingly to adolescents being referred to as a 'risk group'. This is based on assumptions about high levels of adolescent sexual activity. Findings from this study suggest that the term 'risk' should be used with caution for this group of young women. The proportion of girls who are sexually active is consistent with other studies of adolescents in Nigeria. However, this population of young women could not be defined as a 'risk group' in terms of their sexual behaviour, for example in

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[56] The Urban Schools Survey provided both the largest and richest quantitative data set in the project.

terms of the numbers of their sexual partners and frequency of partner change. The Rural Re-interviews confirmed that more than half of the subset of sexually active girls had only had sex with one partner in their life. Of the ten girls who had tested positive for STI and who were interviewed in depth, four had only ever had sex with one man. In the urban study half of all adolescent girls had never had sex. Of girls who had ever had sex, 83.1% had only one partner and 12.4% had no current sexual partner (defined as any partner in the last three months). Of the 68 girls who tested positive for any STI (gonorrhoea, chlamydia, trichomoniasas or syphilis), 80.9% had only had one sexual partner in the last three months and 61.8% had only ever had one sexual partner in their lifetime. Most girls had a sexual partner who was the same age as herself, many of whom are described as students.

This population of adolescent women does not report an unusual variation in behaviour. According to epidemiological modelling of STI in populations, frequent change of partners and multiple partners are limited to a very small proportion of the total population (Anderson, 1990). It is interesting to note that in this study the girl who reported the highest number of lifetime partners (10) also reported the highest number of partners in the last three months (3). It is likely that the sampling strategy of the Urban Survey in schools and the non-response rates in the community meant that few, if any, commercial sex workers were included in the study.

In the risk analysis of the Urban Schools Survey, having more than two partners in the last year or having more than two partners in the last three months suggested an increased risk of having STI. However these associations did not hold in the multivariate risk analysis when confounding factors, such as age, were controlled for (Ikimalo *et al.* 1999 –Appendix 13). The only factors that were associated with the risk of having an STI after controlling for all confounding variables were related to the girl's partner. Presence of an STI was positively associated with having a partner of age 25 years or above, or the partner having an occupation classed in the survey as "other" (that is not professional, clerical, business or student). Risk, for adolescent

women in these communities, seems to depend on the agency of their partner, not necessarily their own behaviour.

In terms of pregnancy and abortion, out-of-school girls were significantly more likely to have been pregnant and have had an abortion that those currently in school, but becoming pregnant may have forced the girl to leave school. Girls who had a partner more than five years older than themselves were significantly more likely to have been pregnant, and to have had one or more abortions, than those whose partners were within the same age range as the girl.

The statistical analysis of the available data for STI, pregnancy and abortion suggests that risk is associated with having an older partner. Unfortunately, however, there is no further information about these relationships. It is not known whether girls perceive their partner as being an 'older man' or even a 'sugar daddy' when he is more than five years older than them.

Several studies in Nigeria have drawn attention to the issue of "sugar daddies", the older male sexual partners of young women. Barker and Rich (1994) found that in FGD, both adolescent boys and girls depended on 'sugar daddies' and 'sugar mommies' to give them economic support. A study in the Ekiti district revealed that young women reported the need for sugar daddies both to continue to live in town and to stay at school (Orubuloye *et al.* 1991). In a different study of men's sexual behaviour in urban centres of Ondo State, Orubuloye *et al.* (1992) found that partners of married men tended to be young women who needed financial support to stay in school, to get extra training, or to establish themselves in an occupation.

In this study, age of the partner is revealed as a significant factor increasing the vulnerability of young women to negative outcomes of sexual activity. This raises many questions as to *how* these relationships increase risk of STI, pregnancy and abortion for young women. For example, it was suggested earlier that adolescent

girls' sexual activity might be sporadic. However, the same may not be true if the girl is relying on the financial support given to her by her partner. More frequent sexual intercourse may increase the risk of STI transmission and pregnancy. Furthermore, there is no comparative information on the sexual behaviour of men of different ages and the age related prevalence of STI amongst men. It would have been interesting to investigate how a girl perceives a partner more than five years older than herself, and in particular the ways in which power relations within a sexual relationship are affected by age differences. For example, do 'sugar daddies', because of their financial position, have more sexual partners, do they have sex more often, and are they more likely to have an STI than younger boyfriends?

5.4 Implications for Health Policies and Programmes

The expected outcomes of this project were, firstly, recommendations for the detection and treatment of STI amongst this population of adolescent girls, and secondly, policy recommendations for strategies to improve the reproductive health of adolescent girls. Some limitations of the methodology and the findings were outlined above, and these preclude formulating definitive policy recommendations without further evidence. Recommendations for the detection and treatment of STI amongst this population, as far as they can be derived from available findings, are given in Ikimalo *et al.* (1999 –included as Appendix 13.) The following section outlines recommendations for adolescent health policies and programmes based on the social study. It is acknowledged that these recommendations must be tentative.

One of the most striking findings of this study is the lack of knowledge about fertility and contraception amongst adolescent women in this area of Nigeria. Girls in the study clearly wanted to prevent pregnancy and saw induced abortion as a last resort. Provision of information to young women about safe and effective means of preventing pregnancy should be a policy priority.

Information, Education and Communication (IEC) strategies designed for adolescents usually assume that adolescents do not know about methods to prevent pregnancy. For example, the Sexuality Education curriculum guidelines proposed for Nigeria (National Guidelines Task Force, 1996), propose that adolescents be taught that (modern) contraceptives prevent pregnancy. Although use of modern contraceptive methods is low in this population, adolescents already know many methods that they believe will prevent pregnancy. A programme that introduces a new range of ways to prevent pregnancy to adolescents, without openly addressing the existing methods, is likely to be less effective.

In this study the 'Bag-of-Tricks Game' was used to bring all the methods employed by adolescents for the prevention of pregnancy into the open in a non-threatening manner. In addition to providing the opportunity to explore how the methods are used, the exercise also facilitated a discussion about how adolescents think the methods might work to prevent pregnancy. It was interesting that, in the group situation, the girls were able to debate the relative merits of each method and, for many methods, come to the conclusion that they might not be effective after all. A follow-on project in Port Harcourt is developing this technique further as part of a curriculum for Family Life Education.

The efficacy of condom use in reducing the risk of STI and HIV infection makes condoms the method of contraception most appropriate in these communities. However, there is a wide literature on the gender issues arising from the promotion of condom use to women (summarised in Kemp 1992) and the limitations of this approach should be recognised.

An education programme should also take into account when adolescents use methods to prevent pregnancy in relation to their pattern of sexual intercourse. Current methods favoured by adolescents are all used post-coitally, whereas the modern methods of contraception usually given to adolescents, pills and condoms, require action before sex. Furthermore, for adolescent girls who engage in sporadic sexual behaviour, the use of pills to prevent pregnancy is likely to be unattractive because of the advanced planning required. Pills are also unpopular because regular dosage increases the risk of detection by parents and guardians. The use of the emergency oral contraceptives, the "morning-after pill", could be considered for adolescent sexual health programmes in this area since the time when it is effective echoes the time when adolescent girls currently use their first–line methods of prevention.

The method of delivery of an IEC strategy is important in determining its effectiveness. Amongst adolescents in these communities, most information about sexual matters seems to be passed on through peer networks. School-based peer educators have been trained in Lagos by an NGO (Action Health Inc., Lagos – personal communication). This programme requires further evaluation but, if successful, it might be extended to other schools. Further development could extend the strategy to areas where out-of-school adolescents gather, such as youth organisations, motor parks, and apprentice workshops.

Schools would be one of the most important forums to reach large numbers of adolescents. In both communities in this study school attendance was high, and few adolescents had not attended any school at all. However, at the moment, any information about reproductive health given in this region of Nigeria is limited to reproductive biology, and in taught in the upper years of senior secondary school. The Guidelines for Sexuality Education for Nigeria propose a wide curriculum of Family Life Education (FLE), covering issues such as personal skills and relationships, as well as giving information on sexual health (National Guidelines Task Force, 1996). The guidelines propose that knowledge is built progressively from age 6 through to 24 years. It is important, however, that in such a programme key messages for the reduction of risk of STI and pregnancy are not limited to secondary schools, since many children start school late and are still in primary school when they are adolescents, or may not continue through to secondary school.

Findings from the study areas suggest that the proposed programme of Family Life Education would be widely accepted. In the Urban Dissemination Phase, parents supported the need to provide information to adolescents. This included the need to provide information about methods of contraception. Parents seemed extremely reluctant to provide information themselves because they thought it would be equivalent to giving permission to their children to have sex, and because they were not sure about which methods were effective. (Some asked that parents be given

information about fertility and contraception themselves). The view from urban parents groups was that this information should be given in schools as part of a programme of Family Life Education.

The importance of the role of men and boys in promoting sexual and reproductive health seems self-evident and was underlined by the findings of this study. Sexual relationships seemed to be initiated by boys or men; boys claimed that they provide girls with the means to prevent pregnancy; male partners of study participants played an important role in deciding about and securing an induced abortion; and having an older male partner puts adolescent girls at increased risk of STI and unwanted pregnancy. It is unfortunate, therefore, that until very recently the field of reproductive health has focussed almost exclusively on women. This study provides another example of the exclusion of men in questions about reproductive health. (This omission represents one of the major limitations of this project, and is discussed further in Chapter Six.

In the proposed programme of Family Life Education in Nigeria boys would be included as a matter of course in the curriculum (National Guidelines Task Force, 1996). It is unfortunate, however, that gender issues in sexual relationships are not addressed explicitly in the Guidelines and most sections are written in gender-neutral language. The Guidelines do not explore ways in which women and men express their sexuality, the different social norms and values influencing the sexual behaviour of women and men, and power relations within sexual relationships (for example in negotiating condom use, or relationships with 'sugar daddies'). One topic within the section on Society and Culture deals with Gender Roles (p. 62-63), but this is limited to promoting equal opportunities in the jobs and careers of women and men. Gender is central to the construction of sexual behaviour and the risk of negative health outcomes. This is discussed further in Chapter Six.

Adolescent girls' lack of access to health services is another issue that these findings suggest should be urgently addressed. Adolescents do not use formal health services, or family planning services, because formal health service practitioners are perceived to be judgemental. Health workers awareness of adolescent health needs and their attitudes towards adolescent sexual behaviour could be addressed in health worker training programmes. In the short term, however, it is unlikely that adolescents or health care workers will change their attitudes. Other ways of providing reproductive health services to adolescents should be explored. In Ibadan, Benin and Lagos, and latterly as a follow on to this project in Port Harcourt, adolescent health clinics have been set up by NGOs. NGOs offer the flexibility to develop health services that are more appropriate and accessible to adolescents although, given their scale, it is likely that they could only serve urban adolescent populations.

The private sector already provides health care for adolescents Rivers State. Chemist shops are an important source of reproductive health advice and of methods of "prevention". Rather than ignoring this resource, the formal health sector might involve these private providers in initiatives to improve the sexual and reproductive health of adolescents. Chemist shops promoting safe and effective means of contraception (particularly condoms) could result in a significant improvement in the reproductive health of young women.

Private practitioners in Rivers State are carrying out abortions for young women. The illegal nature of abortion makes it difficult to investigate further how these terminations are being conducted, and in what conditions. Literature from other parts of Nigeria and evidence from this study suggest that large numbers of sexually active adolescent women seek abortions. Regulating the practice of abortion by changing its legal position should be seen as a health priority. Ensuring that abortions are conducted by medically qualified practitioners and in safe conditions should help in reducing the maternal mortality rate in Nigeria. Private practitioners might also

provide post-abortion counselling to adolescent girls on effective contraceptive methods.

Sexually transmitted infections are difficult to find and diagnose in this population of adolescent girls. Many young women in this study reported vaginal discharge, but very few had sought treatment. This apparent non-response to symptoms has implications for programmes designed to address STI treatment. Many developing countries are implementing the integrated management of STI into primary health care services, but adolescent girls in these communities are unlikely to use formal health services. Management of STI is based on the WHO clinical algorithms for treatment of STI, which use vaginal discharge as the entry point (see Figure 2-1, Page 19 above). According to this algorithm, having a vaginal discharge, being unmarried and less than 20 years of age are sufficient to treat for chlamydia and gonorrhoea. Using this algorithm would have resulted in massive over-treatment of the study population, yet most of the cases of chlamydia and gonorrhoea would have remained untreated. From clinical examination and testing, most chlamydia and gonococcal infections in this study population were asymptomatic (Brabin *et al.* 1995, and Ikimalo *et al.* 1999).

Young women in the study did not seek care for a vaginal discharge. Although vaginal discharge is predominantly associated with candidiasis which has no long term deleterious effects, it is also associated with Trichomonas, which in addition to causing serious long term effects, is thought to facilitate the transmission of HIV. An initial step in addressing STI amongst young women could be to treat symptomatic candidiasis. This should reduce the overall prevalence of vaginal discharge, and therefore improve the sensitivity and specificity of STI treatment algorithms to detect more pathogenic sexually transmitted organisms (such as gonorrhoea and chlamydia) (Brabin *et al.* 1995).

Girls' responses to notification of their partners in this study gives a clear illustration of some of the gender issues which must be considered in designing programmes to address STI prevalence in a community. Women admitted to being afraid to tell their partner about the infection because of the possible reaction. If she perceives that she will be subject to physical violence or accusations of being unfaithful, a women is less likely inform her partner of the infection. In the case of this study, although all women with an STI were treated, and treatment was offered to partners (through the women), few partners came forward. Treatment of STI is an example of how solely targeting women is unlikely to effectively reduce the overall prevalence in the population.

5.5 SUMMARY

There are clear limitations to the methodology of both quantitative and qualitative aspects of this study. The assessment of the prevalence of STI was the most technically and logistically demanding aspect of the overall project and required the involvement of all research teams. This question required the implementation of a large-scale quantitative survey, which provided the framework for all other aspects of the research.

There were several threats to the validity and trustworthiness of the survey data. In the rural survey, the internal validity of the questionnaire may have been reduced by lack of time for preparation and piloting. The age of the interviewers may also have inhibited the respondents, undermining the truthfulness of the adolescents, in particular. In the urban study;

- the sampling frame was difficult to define because of the lack of reliable information.
- the sampling strategy might have been biased towards higher socio-economic status by the heavy recruitment of school girls (although no assessment of socio-economic status was made)
- the response of the community to the invitation to attend clinical examination was poor, making STI prevalence estimates amongst the non-school attendees untrustworthy.

Qualitative and participatory approaches were used primarily to confirm or clarify survey findings, and were therefore employed as an 'add-on', within the positivist framework of the study. Trustworthiness of qualitative data relies heavily on the skills and rigour of the researcher. The techniques and skills of the author evolved over the period of this study, and so data are likely to be more trustworthy from the later investigations.

Despite the limitations of the study, the findings suggest that adolescent girls in Rivers State are at risk in several aspects of their reproductive lives. Like other studies amongst adolescents in Nigeria, this study reveals that the use of modern contraceptive methods, and particularly the regular use of condoms, was rare. However, findings suggest that girls who have sex do not want to become pregnant and use a variety of 'alternative' methods to prevent pregnancy, ranging from calculating a 'safe period' to traditional treatments and patent medicines. What was striking in focus group discussions was the confidence of girls in the efficacy of alternative methods. They believed that girls only become pregnant because they are ignorant of the variety of methods available to them. Adolescent beliefs about methods of preventing pregnancy should not be unexpected since information given through schools was patchy at best, and parents and elders were reluctant to talk about sexual health issues with their children.

Girls had limited access to public reproductive health services and relied on the private sector for care. Local chemist shops in Orogbum promoted the same pharmaceutical products mentioned by girls to "prevent" pregnancy. Unfortunately these methods may not only be ineffective, but may also cause harmful side-effects.

Abortion was only considered as a last resort when other methods failed. Abortions were likely to be a D&C and conducted in a 'private clinic'. There is no further information on what constitutes 'private clinic', or whether the procedure was conducted by a qualified clinician, using aseptic technique. It is likely that the high maternal mortality rates believed to be due to induced abortion in Nigeria result from unsafe clinical practice.

Findings on adolescent girls' knowledge and practice of contraception suggest that 'risk', for the majority of young women, arises because the sexual encounters they have are unsafe. However, adolescent girls cannot be regarded as a 'risk group' *on*

the basis of their reported sexual behaviour. Half of all adolescent girls had not had sex. Of those who had, most had only ever had one boyfriend, about the same age as the girl and likely to be a student. Risk for this group seems to be derived from the sexual behaviour of their partners. In particular girls who had older partners were more likely to have been pregnant, to have had an abortion, or to have had an STI.

The study findings have implications for the design of strategies for the provision of Family Life Education and health services targeted at adolescents. However, although it does provide useful information about the reproductive health of adolescent girls, this study raises many questions that require further investigation. Most importantly this study did not explore the social context of sexual relations and therefore assumed, rather than revealed, what constitutes 'risk' of STI, pregnancy and abortion for adolescent girls in this area. This limitation in the assumptions and methodology of the study is the subject of the following chapter.

CHAPTER 6 - A CRITICAL ANALYSIS OF THE METHODOLOGY AND UNDERLYING ASSUMPTIONS OF THE STUDY

6.1 INTRODUCTION

The aims of the overall research project were:

1. To assess the prevalence of sexually transmitted infections (STI), pregnancy and abortion in adolescent girls.
2. To understand the social factors affecting sexual behaviour, and the risk of STI, pregnancy and abortion.
3. To assess clinical signs of reproductive morbidity in adolescent girls

Identification of STI was based on signs and symptoms (syndromic) and aetiological (microbiological) diagnosis. It was anticipated that comparison of syndromic and aetiological diagnosis would allow the development of a flow chart for detection of lower tract infections. It was further anticipated that the social investigation into the sexual behaviour of adolescent girls would lead to the identification of behavioural 'risk markers' for STI, and the development of risk assessment schedules which could supplement the flow charts for screening and detecting STI in this population[57]. Consequently the methodological approach was to conduct a survey of a sample of adolescent girls in two selected communities. The survey involved administering a structured questionnaire on girls' reported sexual behaviour and conducting a clinical examination and microbiological tests for STI.

This methodological approach was consistent with the epidemiological approach to risk analysis. The project was also consistent with the reproductive health policy environment of the early 1990's in its focus on neglected areas of women's health such as adolescent health needs and sexually transmitted infections.

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[57] "Strategy Document 1992-1995" Health Strategies for Women and Infants Work Programme, LSTM

This research findings highlight key reproductive health issues for adolescent girls in Rivers State Nigeria. Amongst girls who had ever had sex there are high rates of previous pregnancy, induced abortion and STI. Girls have little access to information about or services for reproductive health issues, except through non-formal channels. Instead they seem to rely on 'alternative' methods to prevent pregnancy and use chemist shops as their main reproductive health care provider.

The research has also produced some unexpected findings, which raise interesting questions about factors that influence risk of pregnancy, abortion and STI amongst this population of young women. Few girls display the 'risky' sexual behaviour described in the adolescent health literature: almost half of the young women had never had sex; amongst those who had, over half had only had one partner in their lifetime and few had more than one current partner. Secondly, no association could be found between the 'established' risk factors such as number of number of current and lifetime sexual partners or the age of first intercourse and the presence of STI[58]. The only factors which were shown to positively affect risk of having an STI were related to the girls' partner: a partner older than 25 years and the partners' occupation. Having had a previous pregnancy or abortion were also related to the having an older partner.

This chapter addresses the question 'should these findings have been "unexpected"?' This is achieved through an examination of the underlying assumptions and methodology of the overall study. The key issues to be addressed are:

- How does the project's focus on women influence the exploration of the social context of sexual relations and the construction of risk?
- What were the initial assumptions about adolescents' sexual behaviour and does this influence the study design?

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[58] As discussed in Chapter Five this might be due to the study design, selection bias or a small sample size.

- Did the study methodology optimise the opportunity to explore sexual behaviour and risk?

The chapter concludes with a discussion of possible alternative research approaches. A "social" approach to risk analysis is proposed which is based on health needs or risks shared by social groups rather than individuals. It is suggested that this would allow an exploration of how risk is constructed for various groups of adolescent women and how social circumstances influence their vulnerability.

6.2 FOCUSSING ON WOMEN

This project was able to determine the overall prevalence of STI and describe the 'risky' sexual behaviour of a specific population of adolescent girls in two communities in Rivers State Nigeria. Through the project's dissemination activities, these results were available at local, national, and international levels. Data were published on infection rates, sexual activity, and age of sexual debut (amongst other variables).

Most of the adolescent girls who took part in the study were unmarried and sexual activity amongst this group was largely condemned by parents, teachers, and elders. In the absence of comparative STI rates for young men, and by involving the community in a discussion of the study findings, the project effectively 'created' a problem around the sexual activity of young women. Although the project team attempted to deal with this issue sensitively, there were some instances of blaming the young women for their "unfettered" sexual behaviour (discussions with teachers and parents in the urban community during dissemination phase) or of suggesting draconian measures to curb the movements of young women (informal discussion with female elders in the rural community).

The adverse consequences of publishing and disseminating research findings on a sensitive subject have been noted elsewhere. In Kwa Zulu, South Africa, a great deal of research has been published on HIV infection rates, together with rates of tuberculosis infection and STI. Some researchers have suggested that one of the consequences is that the area is now referred to in South Africa as the 'HIV capital' and young women from the area are finding it increasingly difficult to find men prepared to marry them (discussion at the Hlabisa-Liverpool Link Workshop, January 1998, LSTM).

The consequence of 'blaming the victim' by focussing research solely on women has been well elucidated in critiques of studies of domestic violence. Questions around domestic violence in the past have been phrased around why women stay with their abusing partner rather then why men abuse women.

Men as 'the Problem'

Since the early focus on gender and development, commentators have expressed unease about the construction of men as 'the problem' (Cornwall 1997). Manhood and masculinity is a gendered concept. There are many ways of being a man some of which are valued by different societies and some of which are not. Similarly there are many different ways in which masculinity is associated with power (*ibid.*). Manhood is something that usually requires achievement and has to be 'earned' (Barker 1997). This construction of masculinity underlines the socialisation of young men, and therefore the construction of their sexuality.

Men's sexuality and sexual health needs is receiving increasing attention in the field of public health. Several generalizations can be tentatively drawn from the wider literature. In many parts of the world cultures protect young women through restrictions and constraints regarding sexual knowledge and sexual practice or by early marriage (Engle 1997). In contrast, few cultures exercise sexual restraint on young men. Male sexual behaviour seems to be driven by performance-oriented self-centred sexuality (Barker1997). The expression of this may lead to the need to relate sexual prowess and conquest, which may make coercive or violent sex with women seem 'normal' (Barker 1997). In a study of male sexual behaviour in Ogun State, Nigeria, Orubuloye *et al.* (1992) found that 3% of men said that they were guilty of rape and 1% that they had used physical duress.

In a consideration of the construction of risk of STI, looking at peer pressure on men's sexual behaviour may help to deconstruct men as 'the problem' and to consider the social construction of risk of STI for young men. It could be argued that the

socialization of young men makes them behave in risky ways, both in terms of STI and sexual health but also in other areas of alcohol abuse, accidents, drug taking, etc. Not conforming to these social norms during adolescence may lead to social ostracization or being bated as being homosexual (Barker 1997). Using a similar analysis of the influences on women's sexual behaviour, young men's behaviour could be examined for the social, cultural and economic factors that put them 'at risk'.

Services and interventions in reproductive health are often aimed exclusively at women, which leads to the assumption that they are 'women's issues'. This means that services may be inaccessible to men, or that men may be unconcerned with such issues. In terms of a program of treatment for STI, it has been argued that it would, in fact, be easier to promote treatment for men since they are more likely to be symptomatic (Wasserheit 1994).

Involving men in reproductive health interventions, such as the prevention of unplanned pregnancy and the treatment of STI, is also in the strategic interests of women. Similarly examination of men's expectations from sexual relationships and the promotion of responsible relationships may help to reduce male violence in sexual relationships. In this study it was shown that men play a role in the sexual health decision-making of young women. Boys perceived that they provide girls with the means to prevent pregnancy and male partners played an important role in deciding about and securing an induced abortion

Social Construction of Sexual Behaviour and Risk for Adolescent Women

In this project there was an implicit assumption that an adolescent girl's decision to engage in sexual activity is based on individual rational choice. The project focussed on the epidemiological notions of risk behaviour, which are limited to the sexual behaviour of the individual. Sexual relations are, however, social relations and therefore a site of the operation of power. This operation of power can by analysed along gender lines.

In a literature review conducted previously (Kemp, 1992), the terms of sexual exchange in West Africa were examined in order to elucidate the social and economic determinants of risk of acquiring STI amongst women. The economic constraints upon women's sexual behaviour were examined according to the livelihood strategy framework proposed by Grown and Sebstad (1989). It was argued that a woman's livelihood strategy influences her bargaining position in sexual relationships and risk of STI. Social institutions also dictate the terms on which sex takes place, for example the conjugal contract involves rights in or rights over sexual access and fertility of women, which in turn influences women's bargaining position in such relationships. By unpacking the 'conjugal contracts' associated with sexual relationships, and applying Sen's (1987) extension of the bargaining model, structural influences on women's sexual behaviour might be examined. Kemp *(ibid)* applied such a framework to women in general; however it could also be applied to influences on adolescent women's sexual behaviour and risk of STI.

In the following section the contemporary literature on sexual behaviour in Nigeria is examined to posit the possible influences on the sexual behaviour of young women in South East Nigeria and the gendered construction of risk of acquiring STI. This section is speculative since young women's perceptions of the social influences on their sexual behaviour were not investigated in this project.

The Construction of Risk within Marriage

For the young women who participated in the study in both rural and urban areas, sexual intercourse took place within the context of a variety of different relationships. In the rural community 11% of girls were married, in the urban community survey 4% of respondents were married. However it is important to remember that the distinction between being single and married is not necessarily clear-cut. Marriage in Nigeria may be viewed as a process, involving protracted negotiation and payment of bridewealth, or perhaps congugal testing through the birth of a child (Bledsoe and Cohen 1993). It is possible that the rights and obligations of 'marriage' do not operate from a particular moment in time, but are part of a process. Furthermore, there maybe different forms of conjugal contracts, which involve different terms and conditions and therefore alter the relative bargaining positions for men and women. For example, in the rural community where the study took place, there is socially recognised institution where one daughter in a family of girls (usually the eldest, 'Sira') is chosen by her parents to remain in her natal home. After ritual confirmation of her status, she chooses a concubine. Any children resulting from the relationship belong to her father's rather than to her concubine's lineage. In the following section the rights and obligations of sexual relationships within marriage will be examined in relation to the risk of STI.

In their studies of sexual behaviour of the Yoruba in Ondo State, Oruboloye *et al.* (1997) argue that there is social and ethical acceptance of the proposition that men need more than one wife, and by extension, sex with more than one woman. Their previous survey of sexual networking in Ondo State found that the sexual behaviour of men did not vary significantly according to marital status, and male respondents averaged more than seven partners in their lifetimes (Oruboloye 1992). The authors also suggest that in contemporary Yoruba society, a husband's rights to have sexual relations with multiple partners outside marriage are cannot be questioned by women. Furthermore, an extramarital relationship by her husband is not acceptable grounds

upon which a woman can refuse sex with her husband (Orubuloye, 1993). In contrast, a husband will expect his wife to be faithful to him within marriage. Informal discussions with men and women suggested that these social norms might also apply in the study communities.

In terms of risk of STI, therefore, married women are likely to be at risk through the agency of their husbands. In such circumstances, a woman's ability to adopt behaviours which limit the risk of STI is only as good as her ability to negotiate such change with her husband. Kemp (1992) argued that if a wife suggested that her husband should be faithful she risks disrupting the stability of the relationship. Using Sen's cooperative conflicts model, a woman's decision to risk such disruption will depend on the importance of the relationship, and her perception of what will happen to her should conflict arise (such as the possibility of violence against her). In this study, a key informant in the rural community described how she tried to object to her husband seeing other women by locking herself inside her room when her husband wanted to have sex with her. In response her husband became violent and her family members came to persuade her to 'see sense' and resume sexual relationships with him.

Married women are further unlikely to advocate condom use to protect against STI since it also prevents pregnancy. Literature on the factors affecting women's fertility suggest that in parts of sub-Saharan Africa bearing children is an important factor in married women's position within the household and status in society (Caldwell and Caldwell 1987). It has also been suggested to be a means of leverage with the husband to obtain money (Bledsoe 1990, Ware 1979). In the rural community in this study, (married) women's status was enhanced when they had delivered their first child. The husband paid for an 'outing' ceremony to mark this transition for his wife (field notes). It is possible therefore, that the pressure on a young (adolescent) woman to prove that she can deliver a child means that she is unlikely to negotiate for

condom use or sexual abstinence even if she is aware of her husbands' other sexual relationships and is concerned with the risk of STI.

Another way of dealing with the problem of STI is through treatment. However the strategy of detecting infection in a woman first and then notifying her partner can be problematic from a gender perspective, and is one of the criticisms of this project in only dealing with STI in women. Like suggesting condom use, being tested positive for an STI might carry connotations of having multiple sexual partners or being promiscuous. For married women participants in this study, raising the subject of being tested positive for STI with their partner meant risking conflict within the relationship, and their decision to do so would depend on the importance of the stability of the relationship. Evidence from the in-depth interviews with women who tested positive for STI suggests that several were reluctant to raise the issue with their partners. Since the treatment of STI is only likely to be effective as long as both partners are treated, these women remained at risk of acquiring STI.

It is argued that the social and cultural influences on men and women's sexual behaviour, marriage and childbearing, may put married women at increased risk of STI through the agency of their husband's sexual behaviour. Further, women have limited grounds to negotiate for safe sex or behaviour change within marriage. Risk deriving from 'terms and conditions' of conjugal contracts would not seem to apply in the same way to unmarried men and women. It could be argued, therefore, that young unmarried women choose to engage or not to engage in sexual relations. However in the following sections the literature from Nigeria will be reviewed to see what structural limitations exist, if any, to unmarried adolescent womens' ability to decide whether or not to have sex, and the terms of that sexual encounter. The literature is used to apply Sen's bargaining framework model to unmarried women's risk of STI and ability to adopt protective behaviour. However, it is recognised that this section is

speculative and draws upon the available contemporary literature from Nigeria, which is predominantly from the Yoruba areas of the Southwest[59].

Contemporary Attitudes towards Virginity

Accounts of sexual norms and values within different cultures in Southern Nigeria attest to the high value traditionally placed on pre-marital chastity (Renne 1993; Uchendu 1965). Although not researched in depth, such values are also alluded to in KAP-style surveys conducted in different parts of Nigeria (Owuamanam 1982; Oyenene and Kawonise 1993; Omorodion 1993). In his anthropological description of traditional Ngwa Igbo society, Uchendu (1965) underlines the emphasis that was placed on the virginity of women at marriage. He states that it was mainly the mother's role to ensure the 'morality' of her daughter, for which she was rewarded in the form of an additional bridewealth payment by her son-in-law. Uchendu argues that the importance of virginity promoted the practice of marrying off a girl as soon as she was physically capable of bearing children (*ibid.*). In her anthropological study of attitudes towards pre-marital sexuality in rural Ekiti (amongst the Yoruba), Renne (1993) suggests that historically, the concept of virginity is not only concerned with purity of the woman as a point of pride for her husband, but with the notion of fertility. In 'traditional' society it was believed that a virgin-bride would become pregnant within the first month of her marriage. In contrast, non-virgins at marriage were believed to have 'spoiled themselves' in terms of their fertility and would have difficulties getting pregnant. Renne states that certain pejorative terms were used to describe non-virgins, such as 'something is missing' or 'broken calabash', which related to the notion of difficulties getting pregnant. However there is some evidence to suggest that this historical ideal of pre-marital virginity might have been limited in practice.

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[59] Little contemporary literature on the Ogoni or Ikwerre ethnic groups could be located. The nearest large ethnic group in the Southeast are the Igbo.

Oruboloye *et al.* (1997) support the view first put forward by Goody (1976, in Oruboloye 1997) that 'traditionally' female non-marital sexual relations were not condemned or regarded with the gravity afforded issues related to fertility. There is a suggestion by some commentators that pre-marital virginity was a luxury not available to all within society. Oruboloye *et al.* (1990) and Caldwell *et al.* (1992) suggest that the value placed on pre-marital chastity for women was a source of prestige for powerful and wealthy elites and poor families had to take a more pragmatic view of pre-marital sexual relationships for economic reasons. However, the authors do not provide any evidence to support this claim.

There are likely to be several reasons why the value placed on pre-marital chastity might have changed over time. Renne (1993) argues that certain features of colonialism, particularly the introduction of the new court system and procedures for divorce, and the changing economy of Nigeria, undermined traditionally arranged marriages. A pattern emerged where young women moved to their husbands' houses after sexual relations or when they were pregnant. By the 1970s, according to Renne (1993), sexual intercourse before marriage had become commonplace. Other factors have been suggested as influences on attitudes towards virginity. These include: legal raising the marriage age (Uchendu 1965); cessation of the additional bridewealth payments for virginity (Orubuloye *et al.* 1990); universal primary education (Meekers 1994); and economic opportunities for young people which allow them to pay for their own bridewealth (Caldwell *et al.* 1992).

Several recent KAP-type studies from Nigeria comment on the social stigma and shame associated with pre-marital sex and pregnancy. However, the comments are speculative and might reflect the values and norms of the investigators. For example: Oyenene and Kawonise (1993), describing sexual networking in Ijebu-Ode State, highlight the role of the mother in ensuring a daughters' virginity and suggest that a family would suffer great shame if their daughter was not a virgin at marriage. In Benin, Omorodin (1993) suggests that virgins in Benin received higher bridewealth

payments. Oyubugu (1993) describing sexual relations in Calabar states that a girl's brideprice would be reduced if she was found to have had sex before marriage. Ogbuagu and Charles (1993) point to the social stigma of adolescent pregnancy outside marriage amongst some Igbos and Ibibios. They suggest that parents might refuse their daughter accommodation and maintenance or, if the male partner admits responsibility, will arrange an immediate marriage. Where such marriages are not possible the marriage value of such women drops and they are likely to only marry widowers or become junior wives of already married men.

The notion that girls should become pregnant in order to prove their fertility before marriage seems to have superceded the traditional value placed on being a virgin at marriage amongst younger people. In focus group discussions with school students in Ibadan, Barker and Rich (1992) found a widely held belief that young women should prove their fertility before marriage. Similarly Renne (1997) found support for abortion amongst young unmarried women in Southwest Nigeria because it allows them to provide evidence of fertility without having to have children. Interestingly the concept of 'spoiling oneself' [one's fertility] was in this case believed to be caused by too frequent recourse to abortion, rather than the traditional view of having pre-marital sex (Renne 1993 and Olukoya 1994). In direct contrast to the past in Ekiti, virginity is now associated with infertility and diseases such as gonorrhoea and epilepsy (Renne 1993). Omorodin (1993), in a study of Benin City, found that adult women and mothers of unmarried women in the study were of the opinion that most marriages now only occur when the bride is pregnant and has proved her fecundability.

Christianity, in particular Born-again Christianity, is clearly having a substantial impact on belief and attitudes towards sexual relations (field observations). However there are few studies which comment on its influence. Observation suggests that the recent movement of Born-again Christianity is mostly associated with the professional

classes, although again there are no studies that have looked at this. Renne (1993) reports that amongst born-again Christians in Ekiti, virginity is still respected.

Educational status seems to have varying influences on attitudes towards virginity. Young women in Ekiti (Yoruba) equate virginity with being antisocial and fear that new husbands would regard a virgin as being 'uneducated' or 'uncivilised' (Renne 1993). In contrast, University students in Lagos had a favourable attitude towards pre-marital chastity although many of them did not practice it (Oloko 1993).

What is interesting is that most studies that refer to 'virginity' refer exclusively to girls. There seems to be an inherent assumption that young men do not practice pre-marital celibacy. Caldwell *et al.* (1992) argue that, because men married later in the past, social stability in traditional society relied on young men discreetly finding sexual partners, usually wives of elder brothers within the extended family. Men also had sexual relations with single women if they were not betrothed and from families of lower esteem. Christianity brought changes in attitudes towards sexual relations within extended families, which were regarded as incest, but male pre-marital sexual relations are still regarded as inevitable (Orubuloye *et al.* 1993). In contemporary society, Owuamanam (1982) suggests that there is greater social permissiveness towards the sexual activity of young men compared to young women.

In terms of sexual behaviour, therefore, the evidence suggests that young women are influenced in different ways. There is support for the view that in contemporary Nigerian society a virgin is regarded as a social curiosity and virginity may be associated with illnesses such as gonorrhoea and epilepsy, or with being uneducated and uncivilised. Furthermore, several studies suggest that young women come under pressure to engage to prove their fertility by becoming pregnant before marriage. In contrast, amongst Born-again Christians virginity is regarded as a virtue. However this view is likely to be limited to the social class who are Born-again Christians, which from field observations tend to be educated, urban professional classes.

Although there do not seem to be any 'rights' of sexual access which apply to unmarried women, it is clear that there are social pressures to engage in sexual activity, which may put them at increased risk of STI. Young women who want to prove their fertility by becoming pregnant, or associate virginity with antisocial or uncivilised behaviour, or disease, are likely to feel pressured to engage in sexual relations. In terms of sexual bargaining position, adolescent girls are unlikely to have any leverage on their sexual partners to remain faithful to them since social attitudes seem to support men's rights to several sexual partners. Young unmarried women, like their married counterparts, are similarly at risk of STI through the agency of their partners.

Influence of Education on Adolescent Sexual Behaviour

There is some support for the argument that the introduction of universal primary education and increased secondary school enrolment in Nigeria has promoted sexual activity amongst adolescents. Several reasons have been suggested for this. Formal education in developing countries is one of the reasons why there is an increasing 'bio-social gap' between puberty and marriage (Meekers 1994). Attendance at school means that, at the time when adolescents are becoming interested in sex, there is decreasing influence of parents and elders. This applies either directly, to time spent in school rather than under the supervision of parents and compound members, or indirectly through the exposure of young people to new ideas and concepts and, in most cases, an increased mixing with members of what Meekers and others describe as the opposite sex (Meekers 1994). Influence of parents through direct supervision might be further diminished if the young woman is brought up with relations other than parents, as suggested by Adetoro (1991) or if she moves to an urban area for education. Hollos (1991) suggests that large numbers of young single women in Nigeria migrate for educational purposes. She argues that for many rural parents,

education represents a significant opportunity for the economic prospects of their daughters.

Meekers (1994) in her review of education and adolescent fertility in sub-Saharan Africa suggests that formal education exposes adolescents to new ideas such as Western values and romantic love. A KAP-style study in Benin offers support to this view. Adult women respondents in Benin City said that school education had exposed their daughters to many issues unknown to them at similar ages (Omoridion, 1993). Similarly the books and magazines read by educated young women depict heroic tales of romantic love (field observations). It is likely, therefore, that finding a partner, falling in love and getting married are notions that young women espouse to and education may be one of the influences in promoting these ideas.

The debate in several countries about whether formal sex education in schools increases sexual activity (Kirby 1992) is irrelevant to influences on the sexual activity of girls in this study. At the time of the study, meetings with key informants in the Rivers State Ministry of Education revealed that there was no Family Life Education curriculum in schools. The literature is confused about whether the same is true in other parts of Nigeria. Some sources that review country policies state that Nigeria is one of the countries in sub-Saharan Africa that does have a national family life education curriculum (Meekers 1994; Bledsoe and Cohen 1993). However in Nigeria suggest that any information is limited to reproductive biology (Okonfua 1995; Dementin and Briggs 1994; Barker and Rich 1992)[60]. Furthermore the Nigerian Educational Research Council found that few secondary teachers actually know much about Family Life Education outside their own informal sources (1990, in Bledsoe and Cohen 1993). It is therefore likely that at the time of this study, any information taught in Nigerian schools would be patchy. Meekers (1994) suggests that there has

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[60] Localised education campaigns either in or out of schools may have been carried out in different parts of Nigeria in the past. For example Oni and McCarthy (1990) refer to the 1984 state-wide family planning information, education and communication (IEC) programme in Kwara State supported by the Johns Hopkins Population Communication Services Program.

been general resistance to introducing family life education courses in sub-Saharan Africa due to fear of parental opposition. Informal interviews with three NGO-led initiatives to provide sex education and health services to young people in Ibadan, Lagos and Benin, revealed that all had experienced organised parental opposition. This trend may now be changing with the recent national initiative to develop a school curriculum for 'sexuality education' (National Guidelines Task Force 1996).

Informal education, through the mass media, cinemas, books, radio, etc., may also have an influence on adolescent sexual behaviour. Oyeneye and Kawinise (1993) speculate that these informal influences, together with night clubs, dances and parties, are particularly pronounced in urban areas, and account for observed trends in adolescent sexual behaviour.

Contemporary KAP-type studies are silent on traditional ritual initiation rites as a means for providing information to young people on sexual matters. In the past puberty rights were an important marker of the transition to adulthood, and some of the preparation must have focussed on sexual relations. The influence of this form of sex education should be investigated further.

There is little information in the published literature on Nigeria about the comparative sexual activity rates of in and out-of-school girls. However, in terms of fertility, it is generally found that the lowest rates are among women with secondary education (Bledsoe and Cohen 1993). Comparisons of in-school and out-of-school girls will be confounded because, in Nigeria, as in many parts of sub-Saharan Africa, girls are effectively (if not actually) expelled from school if they become pregnant (Okonfua 1995, Barker and Rich 1992) or if they are found to have had an induced abortion (Adetoro 1991). Fear of being expelled from school because of pregnancy, and the subsequent impact on their economic prospects, may act as a deterrent to young women to engage in sexual relations. In connection with this, it is reported that fear of

being expelled leads many young women to seek induced abortions (Renne 1996, Nichols *et al.* 1986; Ujah 1991; Barker and Rich 1990).

Although fear of pregnancy and abortion leading to expulsion may act as a deterrent to sexual relations, there is some evidence that girls may have sexual relations in order to receive financial support from "sugar daddies" to attend school. Attendance at secondary school, especially, requires cash payments for school fees, uniforms, books, school supplies and examination fees. Economic influences on sexual behaviour are discussed in the following section.

Economic Influences on Sexual Relations

The concept of gift-giving in sexual relationships in Sub-Saharan Africa is not a new one and for many women it forms a part of their livelihood strategy (Kemp, 1992). Unmarried women in Senegal may enter courtships purely for commercial reasons (Van Oostrum 1989). Similarly 'sugar-daddies' who provide schoolgirls with school fees and other material support in return for sexual favours have been described in several African situations (Bledsoe 1990; Meekers 1994; Barker and Rich 1994). Gift-giving in pre-marital sexual relations has also been described in Nigeria. In a study of perceptions of marriage amongst undergraduate women in Lagos, Wa Karanja (1987) describes two types of partner 'Mr Right' and 'Mr Available'. Mr Right is a prospective marriage partner for the women whereas Mr Available, usually a married man, provides pocket money, rent and various other expenses. In Ijebu-Ode, 10% of women said that they engaged in multiple relationships before marriage for money and gifts (Oyeneye and Kawonise 1993). Orubuloye *et al.* (1991) found that 16% of rural women and 21% of urban women said that economic rewards in the form of gifts and money were an important reason for premarital sex. The same study revealed that young women often need sugar daddies both to continue to live in town and to stay at school. In a recent participatory study of adolescent reproductive health needs in Delta State, Olowu (1998) found that community groups raised the issue of educational sponsorship for poor adolescent girls as a potential reproductive health

risk for girls. In this practice, poor parents arrange for a suitor for their daughter to pay for all her educational expenses and provide additional money. The suitor engages in sexual intercourse with the girl while she is still at school, putting her at risk of STI and unwanted pregnancy.

Studies of men reveal the practice of gift giving. A study of men's sexual behaviour in urban centres of Ondo State (Orubuloye *et al.* 1992) found that partners of married men tended to be young women who were at the stage when they needed the financial support of sugar daddies to stay in school, to get further training, or to establish themselves in an occupation. They found that the amount given by men in these relationships was significant, and suggest that those who gain the most financially are young, single women seeking support, but not marriage. Barker and Rich (1994) found that both boys and girls reported 'sugar daddies' and 'sugar momies' who gave them lifts from school, money and goods.

Entering sexual relations for economic support is likely to be a strategy for some young women in Nigeria. Where the support allows them to stay in school, establish an occupation, or continue to live in town, then it is a rational economic strategy. However such sexual relationships offer risks in terms of pregnancy and STIs, both of which have the potential to have long-term deleterious effects. In a bargaining framework, girls' perception of well-being at the breakdown point will depend on her perception of her access to other forms of economic support.

Peer and Partner Influences

A few studies of adolescent sexual behaviour in Nigeria point to the influence of peers and partners on the pre-marital sexual behaviour of young women. The importance of proving fertility before marriage by becoming pregnant was discussed in the context of attitudes to virginity above. It is clear that there is pressure on young women to have sex if they are seeking a stable relationship that will result in marriage (Renne 1993). Furthermore, Renne's study (1993) shows there may be pressure amongst girls

to have sex which derives from beliefs that virginity is unhealthy and antisocial. Girls made derisory comments about girls who are virgins. There is some evidence that adolescents who do not engage in sex are regarded with less respect. In a KAP study amongst school attenders in Oyo State, Owuamanam (1983) found that 68% of adolescents who had sex said that peers encouraged their sexual activities. In response to a question about why people may not engage in pre-marital sexual relations in Ekiti (Orubuloye *et al.* 1991) most men said that such members of their own sex were 'antisocial, shy, timid, afraid of sex, impotent, sick, afraid of their parents, and, occasionally, afraid of disease'. Girls gave similar responses about girls who did not have sex.

Boys urging girls to have sex can use notions of sociability as persuasive tactics. In Ekiti, urban girls emphasised that it was antisocial to refuse to have sex. According to Orubuloye *et al.*:

> Girls often do not particularly want to have sexual relations, but feel that it would be a rebuff to refuse a boyfriend. Indeed boys play on this attitude by saying "prove to me that you love me" (Orubuloye *et al.* 1991).

In a KAP study of sexual networking in Ijebu-Ode, sexual relations were regarded as an important aspect of love and a girl may be rebuffed if she refuses her boy-friend's request for sex (Oyeneye and Kawonise 1993). Some boys' provocation of girls to have sex, to the point of coercion and rape, is also described or alluded to in several studies in different parts of Nigeria. In a study of sexual behaviour in Ondo State (Orubuloye *et al.* 1992), 82% of boys said that they had had their first sexual relationship with a girl of comparable age 'for fun'. 3% said that they were guilty of rape and 1% that they had used physical duress. A study of non-school attending young people (under 25 years) in motor parks in Ibadan (Dare and Clelland 1995) revealed that 6.5% of girls said that they were forced to have sex against their will the

first time they had sex. 6% of women in Ijebu-Ode said that they were forced to have sex on the first occasion (Oyeneye and Kawonise 1993). Orubuloye *et al.* (1991) found that most of the female respondents had their first sexual experience with a friend but a few reported coercive sex either under physical duress or to please an employer or a teacher. Our study of adolescent girls in Port Harcourt found that 3.4% of girls in the urban community did not agreed to having sex the first time. Amongst those, several went on to describe how they were forced to have sex under duress.

Young women in Nigeria come under pressure to have sexual relations, either through perceptions about the lack of 'sociability' related to being a virgin and the need to be accepted and respected by peers, or by coercive sex or rape. In terms of a bargaining framework, a girl's negotiating position to 'just say no', or to negotiate contraceptive use, is limited if she wants to prove her sociability or fertility. "Bargaining terms" similarly cannot be applied to the small but consistent numbers of cases of coercion and rape which are reported in the literature.

Influence of Religion

The spread of Christianity throughout Southern Nigeria is likely to have influenced views of sexual behaviour. Caldwell (1992) argues that Christian teaching emphasised control of sexual behaviour. However, the authors later argue that early Christian missionaries atavistically focused on women's behaviour and men's "essential sexual nature" was tacitly accepted (Orubuloye *et al.* 1997). In a study of the views of contemporary religious leaders in Ekiti, Oruboloye *et al.* (1993) found that views have changed since the advent of AIDS. Most Christian and Muslim leaders now condemn pre- and extra-marital sexual relations for both men and women.

Although little has been written on the influence of 'Born-Again' Christianity in Nigeria, it is clear that it plays an important role in views of sexual behaviour amongst young, unmarried people, particularly women. Booklets and pamphlets promoting sexual 'purity' for young women were available in Port Harcourt. Casual

conversations with young women who confessed to being 'Born Again' suggested that sexual purity was integral to the Born Again identity.

Being Born Again may offer young women a strong bargaining position to refuse to have sex, and therefore may offer protection against STI and unwanted pregnancy. However the message to 'Born Again' girls focuses entirely on chastity and there seems little opportunity to offer information on safer sexual practices in the 'Born Again' circles. The cost is, therefore, extremely high if the girl decides to have sex since she has no information to protect herself, together with the possibility that she may lose social acceptance amongst the Born Again community. The influence of Born Again Christianity on self-identity and sexual behaviour is worthy of further investigation.

Self Esteem and Self Efficacy

Several behavioural models have been developed to explain health-related behaviour. All models are based on the individual's rational decision making. Recent behavioural theories which have been proposed to explain AIDS-related risk behaviour incorporate the construct of self efficacy and self esteem to predictions of behaviour (Social Learning Theory and Aids Risk Reduction Model (ARRM), Catania *et al.* 1990). Self efficacy refers to ones expectations to carry out a specific behaviour (Basen-Enquist and Parcel 1992) or belief in one's capabilities to execute a behaviour (Catania *et al.* 1990). Self esteem is personal judgement of worthiness (Coopersmith 1967, in Oyefeso and Zacheaus 1990).

In the literature on models of health behaviour, little attention is paid to how health decision-making is influenced by gender. In an in-depth analysis of young women's perceptions of risk of HIV and their ability to effect behaviour change in Manchester and London, Holland *et al.* (1990; 1991a; 1991b; 1992) reveal some of the profound influences of gender on risk behaviour. They found that even amongst women who are 'intellectually empowered' with the knowledge of HIV risk and had the intention

to adopt self-protective behaviour, few were 'experientially empowered' to effect the behaviour. They conclude that social and sexual norms for young women, particularly notions of 'femininity' result in making young women more vulnerable to risk of HIV.

There are few studies which explicitly address the issue of gender issues and the concept of self efficacy or self-esteem in Africa. In one study of gender differences in self-esteem in Nigeria, Oyefeso and Zacheaus (1990) used a psychological 'score' developed in Nigeria to assess self-expressed esteem between randomly selected girls and boys attending secondary school in Ibadan. The authors report that boys (mean age 16 years) express significantly higher self-esteem than girls of the same age. The authors attribute the finding to the different socialisation process for men and women in Yoruba society. Although this study does not address sexual behaviour, it would be interesting to assess how notions of self esteem (or self-efficacy) influence sexual decision-making and relative bargaining position in relationships. Girls' notions of 'femininity', self-esteem and self-efficacy, and the construction of sexuality, were not addressed in this project. However in terms of sexual behaviour, and therefore risk, they are likely to be very important.

The focus on women's behaviour runs the risk of ignoring the social context of sexual relations, and therefore the gendered nature of risk of acquiring STI. Some gender sensitive research has focussed on women alone, but has made use of women's narratives about the context of their sexual relationships and the operation of power within them. A notable example of this is the series of WRAP studies on young women's risk and empowerment (Holland *et al.* 1990, 1991, 1992). In its deductive approach to risk, and in its predominant use of the survey method to study sexual behaviour, this project largely ignored the context of sexual relations for young women and the gendered construction of risk.

6.3 Assumptions about Adolescents' Sexual Behaviour

The project's focus on adolescent women is interesting. As discussed in the introduction it derived from the increasing attention paid to this age group. However, it is important to consider how an adolescent is defined in different settings and over time, and further, what is implicitly assumed about adolescent behaviour.

Definitions: 'Adolescents', 'Young People' and 'Adolescence'

In this study adolescents were defined strictly in terms of their age. The study used the World Health Organisation definition of adolescents as the age group between 10 and 19 years. The study then recruited only girls who had reached menarche within this age range. WHO's definition also characterises this period as a transition between childhood and adulthood and involving social, psychological and biological changes (Santos-Ocampo and Hipolito-Nancho 1994; WHO 1995; Bongaarts and Cohen 1998).

Not all commentators on 'adolescence' restrict the definition to age. A couple of recent articles on the reproductive health of adolescents in developing countries suggest that the period of adolescence has increased:

> The period of adolescence has lengthened in recent decades owing to earlier menarche, later marriage and more education... (Senderowitz 1995:1)

and:

> In Africa, the phase of the life cycle between physical and social maturity - typically defined as adolescence- is lengthening, due, in part, to ever-larger school enrolment of adolescents (Mensch and Lloyd 1998:167).

In these cases the authors' use of the term 'adolescence' does not relate to age groups, but rather to a life-stage, sometimes referred to as the 'bio-social gap'. This is the stage when the individual has reached physical maturity but has not yet gained the social status of an adult, either by reaching a legal age of majority or by entering into states associated with 'adulthood', such as marriage and childbearing.

In the 'adolescent' literature this life-stage is clearly associated with distinctive behaviours and, in some commentaries, a 'lifestyle'. The life stage is associated with sexual experimentation and drug taking, risk-taking, rejection of authority and a sense of immortality (Plant and Plant 1992). Such behaviours are presented as a function of being young and essential to the process of transition from childhood to adulthood. Examples of this are:

> Risk-taking and experimentation during adolescence are considered to be normal behaviour because they help adolescents achieve independence, identity and maturity (Jack 1989: 337, in Plant and Plant 1992: 115)

> risk-taking is a normal transitional behaviour during adolescence (Irwin, 1989: 124, in Plant and Plant 1992: 115)

> ...adolescent risk behaviours are functional, purposive, and are often central to normal adolescent development. They have helped adolescents gain peer acceptance and respect, helped in establishing autonomy from parents, in challenging the norms and values of conventional authority, in coping with frustration and anxiety, and in affirming maturity and marking

> a transition from childhood to adulthood" (Santos Ocampo and Hipolito-Nancho, 1994:62)

In their recent review of adolescent sexual behaviour in Nigeria, Caldwell *et al.* (1998) define adolescents as necessarily post-pubertal, less than 20 years of age, and with a distinctive lifestyle. This conceptualisation universalises "adolescents" across cultures and societies and makes their behaviour a result of the essential nature of adolescents. This has been criticised as being a construct that overly homogenizes and pathologizes youth as inherently 'deviant' (Warwick and Aggleton 1992)

> the link between (all modern) representations of youth is the underlying assumption of the *different* and *deviant* nature of youth (Clarke cited in Warwick and Aggleton 1992: 92)

Furthermore, it is argued that the conceptualisation of risk behaviour as a function of being an adolescent is a form of biological essentialism. The ideology of 'adolescence' reifies being young over other kinds of social divisions such as gender, ethnicity and social class, together with differences between societies and cultures, and over time (Ridge *et al.* 1994; Warwick and Aggleton 1992). Such ideologies of youth inform the contemporary studies on young people and risk of HIV/AIDS. Of particular importance to this study, the characterisation of 'adolescents' is based on a masculine model. It is argued here that the same discourse on adolescents informed the conceptualisation of risk of acquiring STIs in this study.

Adolescents and Risk of STI and HIV

In terms of their health, illnesses associated with adolescents are said to derive from their social behaviour and risk taking. These 'social morbidities' include effects of drug taking, alcohol abuse and sexual 'risk-taking' in terms of early sexual debut, sexual experimentation, increased sexual activity, and unprotected intercourse (Plant and Plant 1992). The morbidities associated with adolescent sex are therefore unwanted pregnancy and abortion, early childbearing, STIs. More recently, HIV/AIDS research has drawn upon the discourse of risk-taking adolescents and have categorised them as a 'high risk group':

> HIV research often depicts 'adolescents' and 'youth' as having 'unique' qualities which predispose them to sexual risk (Ridge *et al.* 1994: 371)

Changes in the construction of adolescents can be identified. Warwick and Aggleton (1992) describe the chronological evolution of the 'adolescent' constructed in recent HIV/AIDS literature. These range from the Unknowledgeable Adolescent, who is cognitively deficient in respect to HIV/AIDS; the High Risk Adolescent, where all adolescents are considered to be equally at risk for HIV; the Overdetermined Adolescent, whose complex desires are reduced to biological base; the Tragic Adolescent, tragically and innocently dying of AIDS; and the Irresponsible Later Adolescent, not as malleable as the Early Adolescent with whom interventions are possible.

The problem of characterising adolescents in such ways is that research into HIV/AIDS, and by extension STIs, pregnancy and abortion, is often limited by the preconceptions of adolescents. For example, a study in the United States, which interviewed 860 young people, opened with the premise that adolescents are a group at high risk for AIDS even though 45% of respondents had never had sex, and a further 20% made use of safer sex precautions (Strunnin and Higson 1987, quoted in Warwick and Aggleton 1992). Furthermore, the complexities of how different groups

of adolescents respond to HIV/AIDS, or how some adolescents are vulnerable because of the barriers to their effecting safer sexual encounters are masked.

Gender differences amongst adolescents are rarely treated explicitly in the literature. In the Women, Risk and AIDS Project (Holland *et al.* 1989) a group of young women in Manchester and London took part in in-depth interviews about their risk of HIV/AIDS and their ability to negotiate safe sex. Although most were 'intellectually empowered' by the knowledge of the risks of infection and intention to practice safer sex, few were able to negotiate safer sex in their relationships because of power relations within those relationships. The construction of sexual identity, risk and power in relationships is profoundly influenced by gender.

In this study young women were perceived as being at 'high risk' of having STI and reproductive morbidities (Brabin *et al.* 1995). Questions in the structured questionnaire were based on individual agency and risk of STI, such as numbers of sexual partners, and age at first sex. In the rural study this conceptualisation was 'proved' since the rates of STI were found to be higher in adolescents than in older women of reproductive age (*ibid.*). Older adolescents were reported to be at greater risk than younger adolescents. In the Urban Study, of girls who had ever had sex, 83.1% had only one partner and 12.4% had no current sexual partner (defined as any partner in the last three months). Of the 68 girls who tested positive for any STI, 80.9% had only had one sexual partner in the last three months and 61.8% had only ever had one sexual partner in their lifetime.

The driving assumption of risk in the study was that it is a function of age (adolescents are a high risk group with older adolescents having more risky behaviour than younger). Risk was associated with age so strongly that girls were excluded from the study that fell outside the age criteria even if they were within the same class at school. As discussed above, ages were difficult to determine in the field. Particularly in the rural community, some young women were not aware of their age. Social

divisions between young women would have been much easier to quantify, such as in-school or out-of-school, married or unmarried, living with parents or as a house-girl and so on. As discussed in the previous section these social situations are likely to have an influence on the sexual behaviour of young women, and therefore more likely to influence risk of STI. However the reification of age means that the study is constrained by its inability to analyse findings by different groups of young women.

6.4 Limitations of the Survey Method for Understanding Sexual Behaviour

Background to the Survey Method in Sex Research

From Kinsey's 'Sexual Behaviour in the Human Male', which was published in 1948, the survey method has been employed frequently to study sexual behaviour in the United States of America. Kinsey's studies (1948 and 1953) aimed to document "the plain facts" about sexual behaviour of large numbers of men (and later women). Kinsey's premise was that if sufficient numbers of people reported 'unusual' or 'deviant' sexual activities then, by definition, they were no longer 'deviant' (Stanley 1995). Kinsey developed what he called 'rigorous interviewing techniques' to elicit sexual behaviour which involved careful phrasing of questions and often repeated interviews with the same respondents. For example, instead of asking whether a respondent had *ever* engaged in a particular sexual activity, Kinsey asked *how many times* the respondent engaged in the activity (O'Connell Davidson and Layder, 1994). Kinsey represented the first large scale 'national' survey of sexual behaviour and the first attempt to develop the survey method for sex research.

Other subsequent studies in the UK and the USA have attempted to provide nationally 'representative' descriptions of sexual behaviour, for examples: 'Little Kinsey' (Mass Observation, UK, 1949); 'The Sexual Behaviour of Young People' (Schofield, UK, 1965 and 1968); 'The Hite Report on Female Sexuality' (Hite, USA, 1976) and the recent 'The National Survey of Sexual Attitudes and Lifestyles' (Wellings *et al.* 1994, UK). Stanley (1995) outlines how the different methodological approaches employed by each of these studies reflect the historical development of the survey method as a research tool since the 1950s. 'Little Kinsey' uses a mixture of qualitative and quantitative methods, and a mix of purposive and random sampling. Its findings are presented both quantitatively and qualitatively. Quotes of respondents are given in a real attempt to represent the 'voice' of the people. 'The Sexual Behaviour of Young

People' used random sampling and a market research approach to study different sexual behaviours of young people. The survey was quantitative. The more recent 'National Survey of Sexual Attitudes and Lifestyles' represents a large-scale survey that rigidly adheres to the established codes of sampling, questionnaire design, statistical analysis and measures to ensure validity that typify contemporary surveys.

Surveys of Sexual Behaviour in Sub-Saharan Africa

In sub-Saharan Africa early anthropological texts provide a rich source of information on the social construction of sexuality from studies of issues such as marriage, divorce, family formation, etc. (Standing 1992). Later writings from 1960s were concerned with migration and sexual behaviour in African towns, particularly the spread of STDs. A wave of feminist writing from 1970's focused on power relations and ideologies of sexuality (*op cit.)*.

In the health literature, information about fertility preferences and contraceptive practice are available through Knowledge Attitude and Practice (KAP)–type studies in sample populations, or the National Demographic Health Surveys. The DHS surveys provide some information on sexual behaviour such as age at first sexual intercourse and recent sexual activity (in the last four weeks). Since the 1980s the HIV/AIDS epidemic has fuelled interest in studies of STI, sexual behaviour and sexual networking in sub-Saharan Africa. Most studies use a KAP- format survey, asking questions on epidemiological risk behaviours (such as numbers of sexual partners), bio-medical protective measures (principally condom use) and knowledge of the transmission of HIV/AIDS. Examples of such studies are: Nichols *et al.* (1986); Odunjinrin and Akinkuade (1991); Agyei *et al.* (1992). Vance (1991) criticizes the over-medicalisation of studies of sexual behaviour in the HIV/AIDS literature, and there are some exceptions to this mode of investigation, for example the CONNAISSIDA project in Zaire which is an ethnographic study which led to action-research on AIDS prevention (Shoepf 1991, p. 749), and research studies which focus on actual sexual behaviour and notions of risk such as Pickering's' investigation into commercial sex workers in the Gambia and sexual networking in Uganda (Pickering and Wilkins 1992; Pickering *et al.* 1996).

The Problems with Surveys for Studying Sexual Behaviour

The "sex" survey has been criticised on several levels. Kinsey did not use random sampling to select respondents but used volunteers and a snowballing technique. His sample has therefore been criticised for being self-selected. This sampling method also made it impossible to look at the non-response rate. Furthermore his questioning can be viewed as leading and likely to elicit exaggerated responses (O'Connell Davidson and Layder 1994). Schofield's research into adolescent sexual behaviour focussed exclusively on heterosexual sexual behaviour (Stanley 1995). The National Sex survey claims representativeness for the population but does not discuss the bias that might have been introduced by the survey method. For example, it has been suggested that there was under-reporting of homosexual behaviour through the context and type of questions asked (Stanley 1995).

There are other criticisms of the survey method in terms of its codification of rules and procedures and because of its potential for interpretational bias. Stanley criticises the 'fetish' status of the survey in sexual behaviour research. The emphasis on rules and procedures for 'neutral observation', she argues, leads to claims that the research is valid, generalisable, truthful and scientific. Other researchers have also questioned the reliance on method to produce 'undistorted truths' in surveys (O'Connell Davidson and Layder 1994). The problem with survey research is that the unit of analysis (usually the individual) is viewed abstract from social relationships and issues such as gender, class and race become risk factors rather than loci of the operation of power (Graham 1983.) In surveys of sexual behaviour, therefore, the context of the behaviour becomes less relevant than a measurement of sexual acts (Stanley 1995).

Stanley raises a further concern about the interpretation of survey data. She criticises 'Little Kinsey' because, although it provides many responses to give context and meaning to the figures, the narrative is dominated by a central voice, which is male. For example, Stanley argues that women's dissatisfaction with sex, their boredom and alienation, is clearly articulated in the interviews cited in the text. However this is

unnoted by the commentator. In the National Survey the interpretational concern is centred on whether the sexual behaviour is 'high risk' defined in established epidemiological variables of risk such as number of sexual partners, frequency of partner change and so on *(op. cit.)*.

The study of 'Sexology' as a science has been called into question. O' Connell Davidson and Layder (1994) argue that Sexology, through choice of focus and methods, has defined what constitutes 'good' sexual behaviour within certain social bounds. They suggest that the notion of 'good' sex is pervasive in studies and is focused on heterosexual, penetrative vaginal sex. Weeks (1986 in O' Connell Davidson and Layder 1994) similarly criticises the sexology for its normative influence:

> ...in its search for the true meaning of sex, in its intense interrogation of sexual difference, and in its obsessive categorisation of sexual perversities it has contributed to the codification of a 'sexual tradition', a more or less coherent body of assumptions, beliefs, prejudices, rules, methods of investigation and forms of moral regulation, which still shape the way we live our sexualities (Weeks 1986: 14, in O' Connell Davidson and Layder 1994: 17)

In many studies what respondents understand by 'sex' is not explored. Sex is implicitly understood to be heterosexual penetrative vaginal intercourse. One exception is the study of adolescent sexual behaviour by Schofield, which investigated the range of behaviours such as kissing, and petting in addition to penetrative vaginal intercourse. However, this range of behaviours was assumed to be the prelude to vaginal intercourse, rather than what might be perceived as sex by the young respondents in the survey. Questions concerning homosexual sex are largely absent in survey research, or are approached in such a way to suggest 'otherness' and 'deviance'. For example, in the National Survey of Attitudes and Lifestyles (Wellings

et al.) questions on homosexual behaviour were relegated to the end of the questionnaire and were phrased using barrier questions such as 'Have you *ever*...?' (Stanley 1995). As exceptions, both the Hite studies and Little Kinsey provide meanings of sex from the respondents' points of view. Shere Hite adopted a survey style of open responses and space for respondents to explain in detail what the questions meant to them. In Little Kinsey the frequent use of the 'voice' of respondents expressed cultural and self-defined sexualities, although the interpretation was limited to one of the (male) researchers (*ibid.*).

Focussing on heterosexual intercourse ignores the social construction of sexuality and sexual relations, their varying social significance and subjective meaning and how what is assumed to be 'natural' sex changes through generations (Vance 1991). It can also be argued that the notion of 'heterosexuality', meaning "opposite"[61] gender sexual contact, is itself ethnocentric and a product of 20th century industrial society (*op.cit.*)

The research into the sexual behaviour of 'risk groups' for HIV and the biomedical attempts to protect the 'normal' population can similarly be criticised for its normative influence. In North America and Europe groups infected with HIV such as gay men or drug users were distanced as deviant or 'other' from those who practice heterosexual sex. In Africa, where HIV was assumed to be transmitted heterosexually, early accounts of HIV infection drew upon constructions of Africans as having "unfettered sexuality" (Shoepf (1991)) and as practicing 'exotic' customs that spread HIV (Packard and Epstein, 1991). Hrdy, in a review of HIV transmission in Africa, states the view explicitly:

> Although generalisations are difficult, most traditional African societies are promiscuous by Western standards (Hrdy 1987:1112).

There is another strand of criticism about the bio-medical basis of many surveys of sexual behaviour in relation to STI and HIV. Bio-medical approaches view sexuality as derivative from physiology and the universal functioning of the body, devoid of social influences (Vance 1991). According to Vance this serves to re-pathologise sex in health and disease terms. The bio-medical discourse, because of the privileged position of medical practitioners (in terms of class, gender and racial groups), is implicitly a regulatory discourse about morality, gender and social order *(op.cit.)*.

Assumptions Implicit in this Study

The meaning of sex

In this study of adolescent girls sexual behaviour, sex was implicitly understood to mean heterosexual, penetrative vaginal intercourse. For example, in the Urban Study the initial interview with the social team the respondent was asked " Have you ever had sexual relations?" (Urban Social Questionnaire, Question 2.6), which, if the women responded positively, was followed by asking how many sexual partners she had in the last year. Sexual partners were implicitly male from the use of 'he' and 'his' in subsequent questions about age, occupation etc. For examples: "What is his relationship to you?" (Question 3.4), and "What is his main occupation? (Question 3.6). In the second interview with the clinical team, the respondent was again asked if she has ever had sexual intercourse.

What young women in the two communities understand by sex was never explored. Questions about sex revolved around bio-medical markers of risky sexual behaviour (number of partners, age of first sex, etc.). This presents problems for the research on several levels. Firstly in purely positivist terms, the internal validity of the questionnaire can be questioned. What was meant by the question and what the

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[61] The Sexology literature defines two sexes and they are assumed to be opposite.

respondent understood might have been entirely different, calling into question the validity of the reported findings.

Because the aim of the research was to establish a risk assessment for STI for this population it was logical to include questions on, and therefore test, known epidemiological risk factors. However, the stated aim of the study was to establish risk assessment schedules designed for "this geographical and cultural location"[62]. The omission of questions about a range of sexual behaviours, which might represent risk of acquiring STI, is therefore surprising. For example, anal sex might increase the risk of acquiring STI whereas masturbation carries little risk. Furthermore, although not stated during the interview, there was an implicit assumption that any partner the girl referred to was male. Again, risk of acquiring an STI might be greatly reduced for women in lesbian relationships. Therefore, although the intention of the research was to describe risky sexual behaviour in this context, the bio-medical reductionist approach to the research obscured the possibility of investigating alternative behaviours. Hence what constitutes risk behaviour was assumed by the research team rather than explored in this setting. A similar criticism is levied at the National Survey of Attitudes and Lifestyles by Stanley (1995).

The assumption of the study that girls engage in heterosexual intercourse, which is 'normal', can also be challenged. Assuming that girls have sex because they want to in all circumstances is naive. When asked about their first sexual encounter, 26 respondents (3.4%) said that they did not agree to having sex and several went on to describe how they were raped or abused as children. Standing (1992) draws attention to the major silences in the literature beyond the received wisdom that sex takes place between consenting adults.

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[62] "Strategy Document 1992-1995" *Health Strategies for Women and Infants Work Program*, LSTM

Changes over time

In this study young women were assumed to be more sexually active than the previous generations. This was based on assumptions common in the adolescent literature about adolescent sexual risk-taking and sexual behaviour. However no retrospective information was collected from older generations of women in the study that could verify this change. The 1990 Demographic and Health Survey for Nigeria reports that, comparing cohorts of women, there has been very little change in the median age of first sexual intercourse, which is just over 16 years. Furthermore a review of the social dynamics of adolescent fertility in sub-Saharan Africa suggests that the 'amount' of sex that adolescents engage in has not changed significantly over time, but it is the social context in which sex takes place that is changing, specifically in relation to marriage.

Interpretation and analysis

In the published findings of this study (Appendix 12 and Appendix 13) the narrative voice is entirely that of the research team. The interpretation of the data is conducted from a clinical/public health perspective. Interpretation is based on individual risk behaviour, confined to the established notions of 'risk'. In this thesis the voices of the respondents are included. In addition respondents and local stakeholders were included in the discussion and validation of findings in the Dissemination Phase. However qualitative and participatory approaches were only employed after the main survey in each community, and for very narrowly defined questions of clarification. A different study design, based primarily on a qualitative or participatory exploration of how risk is socially constructed for adolescent girls might have opened different lines of enquiry, and interpretation of risk.

6.5 THE 'RISK' APPROACH IN THIS PROJECT

One of the stated objectives of this project was "to understand the social factors affecting sexual behaviour, and therefore the risk of infection, pregnancy and abortion". One of the difficulties encountered in the research was that it was not made explicit at the outset how 'risk' or 'social factors' were understood, or how they would be measured. Implicitly 'risk' and 'social factors' were understood in epidemiological terms, that is risk *factors,* including social and demographic factors that would be tested for statistical association with the presence of STI[63]. How 'risk' related to the outcomes of pregnancy and abortion was also not explored. As discussed in Chapter Two, both pregnancy or abortion might be viewed as welcome outcomes, therefore 'risk' analysis takes on a new meaning.

The Epidemiological Approach to Risk

Although 'risk' and 'social approaches' were not made explicit in the project, there were certain behavioural risk factors which were measured in order to ascertain risk of STI. The factors were: number of current and lifetime sexual partners, age of first coitus and frequency of sexual intercourse (attempted). All these factors are outlined in the epidemiological literature on the risk factors for STI (Anderson 1992).The approach used is also consistent with studies of risk of STI in other, older populations of women (Behets 1995; Vulysteke 1993; Maynaud 1995).

Risk analysis in health has long been used to aid clinical screening to identify patients with special needs (de Kadt and Tosca 1993). Risk analysis is described as:

> The risks, chances, probabilities for the individual can be predicted, on average, from analysis of the collective experience of large numbers of

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[63] One of the contributing factors to the lack of clarity was that the statistician/epidemiologist joined the project eighteen months after the project start-up.

representative individuals with the characteristic in question (Morris 1975: 98, in de Kadt and Tasca 1993:10).

Using this analysis allows the clinician to describe categories of disease shared by individuals. Risk characteristics can be physical, behavioural or be based on socio-economic or demographic variables. One of the expected outcomes of this project was a screening algorithm(s) for STI in this population of adolescent girls. Screening algorithms are a good example of how risk analysis is used practically in the clinical setting.

The Survey Approach to Risk in this Study

Using the survey as the basis to identify variables which are to be statistically associated with risk factors is an appropriate method, and has been employed by other studies to look at risk of STI in various populations of women (Behets 1995; Vulysteke 1993; Maynaud 1995; Daly 1994). However, there are several problems with the survey method for exploring risk in this study because the aim of the wider study was to understand sexual behaviour amongst this population of adolescent girls, within this social context.

In the epidemiological approach risk is highly individualised. In this study, as in many other studies, the concept of risk centred on an individual's sexual behaviour. What is lacking from this conceptualisation of risk is the *context* of sexual relations. Few questions were asked in the study that could reveal the social, cultural and economic construction of risk. For example, in the survey there are no questions that reveal the socio-economic status of the respondents, or reasons why girls have sexual relations. The only questions which touch on why a girl has sex were related to the first sexual encounter. Any contextual information was obscured. This individualised notion of risk is accentuated because the survey treats people as units, divorced from their social context. As such the wider social influences of gender, poverty, ethnicity and so

on, become properties of the individual rather than influences on their behaviour and the construction of risk.

Adolescents as a 'High-Risk' Group

The project treated age as the primary risk factor. Indeed, superficially, many health issues of adolescence seem to be related to age. As discussed in Chapter One, adolescents and young people have higher a prevalence of HIV and other STI than older age groups in most settings. In this study adolescents and young women had higher prevalence of all STI, other than syphilis, than older women. Pregnancy during adolescence also has a higher risk of maternal mortality than in older women. Adolescents constitute a large proportion of the women who seek induced abortions.

Adolescents are considered to be 'risk takers' in terms of their sexual behaviour and are referred to as a 'risk group' for HIV and STI. Risk-taking in their sexual behaviour is said to derive from sexual experimentation, increased sexual activity, and unprotected intercourse. The resultant social morbidities are STI, unwanted pregnancy and abortion (Santos-Ocampo and Hipolito-Nancho 1994). The high rates of these outcomes amongst adolescents in this and other studies would seem to support the assumption of sexual risk taking.

A substantial body of literature on HIV infection problematises the identification of groups as 'risk groups'.[64] In the early stages of the HIV epidemic, risk groups were seen as 'other' to the general population and HIV became associated solely with the risk group. The association of HIV infection with certain groups in the population and with "promiscuity" led to what has been called "medico-moral discourse" of blame (Seidel 1993) The sexual behaviour of the risk group is assumed and risk of infection becomes a function of membership of the group rather than of unsafe sexual practices. Risk groups are assumed to be a unitary category that shares the same pattern of

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[64] The literature is not reviewed here. A discussion of the construction of risk groups is given in Schiller *et al.* (1994)

sexual behaviour. This means that others who engage in risk behaviour, but do not regard themselves as members of the group, disassociate themselves from risk.

In the case of adolescents, their definition as a 'risk group' depends on essentialist assumptions about their sexual behaviour. Such assumptions are problematic on several counts. The construction of 'adolescence' as a unitary category has been discussed in an earlier section. Membership of the adolescent 'risk-group' is based on age alone, and sexual behaviour is assumed to be promiscuous. In this study it was found that the population of adolescent girls displayed a wide variation in their sexual behaviour. Almost half of all the adolescents had never had sexual intercourse. Of those who had, most girls only had one current sexual partner who was approximately the same age, who they referred to as their boyfriend. Most girls, therefore, could not be classified as 'risk takers' in terms of their own sexual behaviour.

Adolescent health issues which seem to be age-related also need to be examined closely. Reviews of the medical literature suggest that many of the risks derive from social circumstances and, from pregnancy, being primagravidae (Chapter Two). Even risks which seem to be related to age, actually depend on the stage of physical maturity of the woman. For example, young adolescents are more likely to acquire STI because of the immaturity of their genital mucosa. The age of puberty varies across populations and from woman to woman, making age a less precise indicator of risks of these outcomes than physical maturity.

A Social Approach to Risk for Young Women

The epidemiological approach to risk behaviour is premised on an individuals' sexual behaviour and individual agency. As outlined in the previous sections, this project is consistent with this approach. Similarly the risk analysis in the syndromic approach to screening and treating STI focuses on the individual and their sexual behaviour. However, sexual relations are social relations and therefore a site of the operation of

power. If, instead of focussing on the individual agency, the theoretical starting point is the assumption that sexual activity is primarily socially constructed (Dowsett and Aggleton 1999), then an alternative approach to risk becomes apparent.

Gender analysis of the social, economic and cultural influences on sexual behaviour allows an exploration of how sexual behaviour may be socially constructed. In an earlier section of this chapter the literature on the sexual behaviour of young women in Nigeria was reviewed. A bargaining model was used to explore how power might operate in different sexual negotiations. The literature review suggests that there are several possible social, cultural and economic influences on the sexual behaviour of young women. For example, young unmarried women may feel pressure to engage in sexual relations because of social attitudes which eschew virginity and social expectations that a woman should prove her fertility before marriage. Norms and values around female and male sexuality may influence men to put pressure on, or coerce, young women to engage in sexual relations. Education of young women may exert both negative and positive influences on the desire to have sexual relations: negatively, through increased self esteem and ambition and fear of being expelled through pregnancy and abortion; positively through greater freedom from parents, new ideas or through the need to engage in sex in exchange for school fees. The need for economic support from sexual relations may be an important part of the livelihood strategy for some women. Several of these factors are likely to have an impact on the risk of STI, unwanted pregnancy and abortion.

Few risk analyses seem to model the role of partners in putting women at risk of STI (or HIV). Many models of risk are gender neutral and do not distinguish the risk behaviour of men and women, even where there are clearly different social norms for their sexual behaviour. In Nigerian society, evidence suggests that it is socially acceptable for men to have many sexual partners. It is important, therefore, to look at the social context of sexual behaviour for both young men and women, and for

models of risk (such as syndromic management of STI) to take account of partner agency.

In Section 6.3 the category of the 'adolescent' was unpicked. The term signifies more than an age group, it carries with it essentialist assumptions about sexual behaviour and 'risk taking'. It was argued that age is reified above other social divisions (such as socio-economic status), which may be more important in a consideration of 'risk'. In a similar way, it is important to look beyond the unitary category of 'young woman' to consider how social and economic circumstances influence sexual behaviour and therefore the construction of risk for different social groups.

In their proposal for a new, social approach for the health sector, de Kadt and Tasca (1993) outline an alternative approach to the analysis of health issues and the design of health interventions. They present an alternative to individualised model of risk. They argue that it is operationally easier to identify social groups who share 'health chances'. Health chances are related to socially structured 'life chances'. It is possible, therefore, to identify groups (based on social categories) who have greatest health needs, and who are also likely to have the least access to health services. They state:

> Though individual screening has a role to play, it is the crass differentials in socially structured life chances which should provide the starting point for health care service interventions, and which should set the boundaries within which individual screening takes place (de Kadt and Tasca 1993: 17)

Both social and medical literature point to the importance of poverty as a factor which underlies risk. Adverse outcomes in adolescent pregnancy are associated with under-nutrition and low socio-economic status, and there is some evidence to suggest that women of low socio-economic status are more likely to seek induced abortions from cheaper, less safe sources.

In trying to examine how sexual behaviour is social constructed, it is important to look at how 'life chances' structure risk. Applying this analysis to Rivers State, it should be possible to look at the social context of sexual behaviour and health outcomes for different groups of young people. Socio-economic status is an important social differential. Groups which could be considered are: young people living in areas which could be geographically identified as 'poor', street children or groups of out-of school adolescents with little or no education. Beyond the broad group defined by 'poverty', other axes of vulnerability may be considered. For example, for young women it would be important to consider girls living away from their parents' home, particularly the almost invisible group of 'house girls'.

The sexual networking literature provides another example of how risk of STI infection can be investigated for different social groups. In Chapter Five it was suggested that the differences in the observed STI rates amongst the rural and urban adolescents may be due to different STI prevalence in their sexual networks. Recent evidence suggests that people may choose their sexual partners from a limited group or network (Pickering *et al.* 1996; Oruboloye 1992). This implies that the risk to the individual of acquiring an STI depends on the prevalence of STI within his/her sexual network. Sexual networks, like social networks, are likely to be based on broad social divisions. The link between socially structured influences on sexual behaviour (and risk) and the prevalence of STI in different social/sexual networks is worthy of further investigation. According to Rothenberg *et al.*:

> Social structure may act as a barrier (of facilitator) in disease transmission and that the epidemiologic impact of a risky act varies with the social setting
>
> (1996: S144)

These proposed 'social' approaches to the conceptualisation of sexual behaviour and risk lead to an alternative methodological approach to research. As shown in Section

6.2, a review of published literature and secondary sources for Nigeria reveals influences on the sexual behaviour of young women, and generates issues which might be investigated through empirical research. This would explore the context and meaning of sexual activity for different groups of young women and men, and should be an inductive research process, involving a range of qualitative and participatory research methods. The research would lead to an understanding of which different social groups are more at risk for unwanted outcomes of sexual activity and why. Quantitative research could then investigate statistical associations of 'risk' with different groups and social circumstances, as well as establishing the overall scale of the problem. Such a methodological approach breaks down the broad categories of 'young women' and 'adolescents' into social groups that more easily form the target for health interventions.

6.6 SUMMARY

The Reproductive Morbidity Project was successful in its aims to document the prevalence of unwanted outcomes of sexual behaviour amongst adolescents, and to assess the clinical signs of reproductive morbidity in the same population. The study was consistent with the reproductive health discourse of the early 1990s. The research findings highlighted the extent of reproductive health problems for a previously neglected population of women. This study is also one of the few to document the prevalence of STI amongst a population of unmarried adolescent women in a developing country. However, it achieved limited success with its second aim, "to understand the social factors affecting sexual behaviour, and the risk of STI, pregnancy and abortion." The findings did not demonstrate an association between established behavioural risk factors and the presence of STI. There are initial indications that a partner is important in determining the risk of pregnancy, abortion and STI for young women[65]. In this chapter the reasons why risk of STI, pregnancy and abortion was not explored fully in this study were examined.

It is proposed that the underlying assumptions and the chosen methodology for the study limited the exploration of risk. The underlying assumptions of the study were that sexual behaviour is based on individual rational choice, that risk is therefore highly individualised, and that adolescents are a homogenous group of sexual risk-takers. These assumptions not unique to this study and are common within the sexual behaviour and adolescence literature. A recent review of the literature on young people and HIV/AIDS concludes that this type of 'knowledge, attitudes, beliefs and practices' research is the most common in the literature and calls into question the usefulness of sponsoring further studies of this kind (Dowsett and Aggleton 1999).

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[65] The role of partners was not considered in the initial project design. Their inclusion in the urban survey was due to the social analysis and qualitative investigations in the rural community

It is argued the main methodological limitation of the study was the pre-eminence given to the survey as the first and main research tool to study sexual behaviour. The project timetable was fixed at the outset so that the first research activity implemented in both communities was the survey to establish the prevalence of STI. Qualitative and participatory research was then employed to clarify survey findings. The survey design was also limiting because: meanings of 'sex' were not fully explored; 'normal' sexual behaviour was assumed; risk was measured only in terms of established 'risk factors' and individuals were treated as the unit of analysis.

In conclusion, an alternative approach to the analysis of risk of unwanted reproductive health outcomes was proposed. This is based on a study of gender relations within sexual relationships and the assumption that sexual behaviour is largely socially constructed. The influences on sexual behaviour will vary for different social groups of young women and men. To analyse risk, therefore, it is necessary to understand the social context and influences on the sexual activity amongst groups of young people. Risk of STI should be elucidated for different social groups within different sexual networks. Methodologically this would require a period of exploratory, inductive enquiry, employing a review of secondary sources and qualitative and participatory empirical research. The survey can then be implemented to establish statistical associations of risk and STI. It is argued that this type of enquiry would provide a better springboard for targeting practical health interventions because it identifies specific social groups of young women (and men) who are at greatest risk of the unwanted outcomes of sexual behaviour.

CHAPTER 7 - CONCLUSION

This thesis describes a social study of sexual behaviour and the risk of sexually transmitted infections (STI), unwanted pregnancy and abortion amongst adolescent girls in Rivers State, Nigeria. The study was part of a multidisciplinary research project which was carried out in two communities, one rural and one urban, between 1992 and 1996.

The project was consistent with the 'reproductive health' approach to women's health formulated in the late 1980s. This approach was a policy response to the criticism that previous health services were only concerned with women's role as mothers and reproducers. The policy shift emphasised previously neglected areas of women's health such as the health needs of adolescent women, and the risk of sexually transmitted infections.

STI, pregnancy and abortion amongst adolescents are considered to be priority issues. Adolescents and young people have a higher prevalence of HIV and other STI than older age groups in most settings. Adolescent women are more likely to be infected than adolescent men, but STI are especially difficult to detect in women, where they are often asymptomatic, and microbiological diagnosis is technically demanding. Rates of adolescent pregnancy and childbearing are declining in the developing world, but they have nevertheless, become policy priorities. This may be due to recognition of the health risks associated with pregnancy at a relatively young age, and growing understanding of the educational benefits of delayed childbearing. It may also be because adolescent childbearing increasingly takes place outside marriage, and is perceived to be a social problem. Abortion, if carried out under safe conditions, presents less of a health risk to adolescent women than childbearing, but evidence from developing countries, particularly Nigeria, suggests that complications arising from induced abortion are a significant cause of maternal deaths.

In the public health literature, there are many studies of sexual behaviour and reproductive health issues amongst adolescents in Nigeria. Few studies, however,

have investigated the prevalence of STI in this group in a developing country, perhaps reflecting the methodological and technical difficulties of conducting this type of research. This study was unusual in that it combined the investigation of several different aspects of the reproductive health: STI, pregnancy and abortion. It employed a multidisciplinary approach, involving social, clinical and microbiological research teams.

The subject of the research raised important ethical and methodological issues. The methodology developed over the course of the project, with later investigations benefiting from the experience gained in the early stages of the study. Most notably, social research findings from the rural study influenced the urban survey instrument and approach. New lines of enquiry were added such as details on the girls' sexual partners, pregnancy and abortion history, first sexual encounter and methods used to prevent pregnancy. Research tools, such as the 'Bag-of-Tricks' game, were specially designed to be 'adolescent-friendly'. However, the overall study design was driven by the project's primary objective to determine the prevalence of STI. This meant that the first research activity conducted in each community was a survey involving questions on sexual behaviour, followed by a clinical examination and microbiological tests. Qualitative and participatory techniques were primarily used within a positivist framework to clarify survey data.

The findings of this study suggest that there are important reproductive health issues to address amongst adolescent women in Southeast Nigeria. 19% of sexually active adolescent girls in the rural community had a STI and 24% had experienced a pregnancy ending in abortion. In the urban community about 10% had an STI[66] and 23% had experienced a pregnancy ending in abortion. Knowledge of methods to prevent pregnancy was high, but use of modern contraceptives was low. The most

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[66] Cumulative STI figures are difficult to report for the urban study since it was conducted in two stages, school and community, and different proportions of women were tested for STI in each survey.

popular methods of "prevention" were alternative (non-formal) methods, unlikely to be effective contraceptives. Some of the methods, used inappropriately, might be harmful, particularly the pharmaceutical products. These findings on contraceptive use reflect the fact that few formal sources of information on reproductive health issues were available to young women. Family Life Education was not taught in schools in Rivers State. Adolescents perceived health workers to be judgemental and harsh, and rarely used the public health services. Instead, adolescents preferred to use chemist shops for contraceptives and reproductive health advice. A follow-up Mystery Client exercise revealed that chemist shops recommended the same range of alternative pharmaceutical drugs for the prevention of pregnancy as was mentioned by adolescent girls. As last resort, girls sought induced abortions, usually a D&C, from what they referred to as "private clinics." Abortion is illegal in Nigeria and it would be very difficult to ascertain the quality of the clinical services offered in these "private clinics". It is clear that many adolescent women are at risk of the long-term effects of untreated STI, at risk of unwanted pregnancy, and therefore at risk of an unsafe induced abortion from a private practitioner.

What is less clear from the study is the social context of adolescent sexual behaviour and therefore the *construction* of risk of STI, pregnancy and abortion. In the health literature, adolescents are perceived to be risk-takers, which includes their sexual behaviour. The findings of this study on the prevalence of STI, pregnancy and abortion, and of other studies of reproductive health outcomes amongst adolescents, would seem to support this assumption. However, phrases such as 'risk takers' or 'risk behaviour' should be used with caution in relation to this population of adolescent girls. Almost half of all the adolescents had never had sexual intercourse. Of those who had, many only ever had one sexual partner in their life. For most girls, their sexual partner was approximately the same age and was referred to as a boyfriend. In terms of STI, evidence from this study strongly suggests that young women were at risk through the agency of their partners, rather than as a consequence of their own sexual behaviour. Of the 68 girls in the Urban Study who tested positive

for any STI, 81% had only had one sexual partner in the last three months and 62% had only ever had one sexual partner in their lifetime.

Other findings from the study give indications of some of the social factors that may influence sexual behaviour and, therefore, the risk of unwanted outcomes. In the Urban Study it was found that girls who had partners older than themselves were more likely to have an STI, to have been pregnant or to have had an abortion. Focus group discussions in the rural community suggested that adolescent girls, particularly if they are poor, engage in sexual relationships for financial support. The occurrence of "sugar daddies" and the importance of financial support for the girls from their sexual relationships is worthy of further investigation. Findings from other parts of Nigeria suggest that the economic support received from partners is significant, and may allow some girls to continue to attend school or to stay in town.

The second part of this thesis examined the limitations of the methodology and underlying assumptions of the project, in particular in the investigation of the social factors affecting sexual behaviour and the risk of STI, pregnancy and abortion. The project adopted a deductive approach to exploring sexual behaviour. Several features of the initial project concept make this apparent, in particular the rigid focus on 'adolescent' women and the reliance on the epidemiological approach to risk, based on the survey method.

Limiting the project to women denies the opportunity of looking at gender differences in sexual behaviour and STI, and serves to create a problem around women. Similarly, sexual behaviour was only investigated from the individual perspective, so that the context of sexual relationships, and the social, cultural and economic influences on behaviour were not explored. The way in which risk might be socially constructed for young women, or men, was not considered.

The strict age limit on the respondents in this study means that age is reified as a risk factor for the unwanted health outcomes of sexual intercourse. Although adolescents are clearly at risk of such outcomes, evidence suggests the risk is not derived from age but rather from physical maturity, primagravidae, and, importantly, from social influences. Furthermore, the focus on adolescents relies on assumptions about their sexual behaviour, which are not borne out in this population of adolescent girls.

The project was based on the epidemiological approach to risk of STI. The survey was used to elicit information on demographic, behaviour and clinical variables. These were then tested to see if there was any statistical association with STI, or with pregnancy and abortion. The assumptions about risk behaviour were based on other studies of risk factors for STI from different populations. These risk factors are related to solely to the sexual behaviour of the individual. The findings of this study suggest that young women are at risk through the agency of their partner. In Nigerian society, evidence suggests that it is socially acceptable for men to have many sexual partners. Focussing the study on the sexual behaviour of women, with the assumption that risk is derived from an individual's behaviour, proved to be naïve.

It is further argued that the design of the study exacerbated limitations arising from the initial assumptions of the project. The first activity in both communities, and the one which used most project resources, was the survey. The survey treats individuals as units divorced from their social context, again masking the social influences on sexual relations. The survey approach is appropriate for a study of the statistical association of risk factors with STI infection and is consistent with the way risk is approached in medicine. Using this analysis allows the clinician to describe categories of disease shared by individuals with similar risk factors, which may be physical, behavioural or be based on socio-economic or demographic variables. The same factors are then used in screening tools, such as the WHO algorithm for screening for STI in women who attend routine health services.

In this study, this approach showed that few girls display the 'risky' sexual behaviour predicted in the adolescent health literature. No association could be found between the 'established' risk factors such as number of number of current and lifetime sexual partners or the age of first intercourse and the presence of STI. The only factors which were shown to positively affect risk of having an STI were related to the girls' partner: a partner older than 25 years and the partners' occupation. These findings are important, and lend support to an alternative approach to the study of sexual behaviour and risk of unwanted reproductive health outcomes.

The findings of this study underline the urgent need for effective policies and programmes to improve the reproductive health of young women in Rivers State Nigeria. However, many questions remain and will require further investigation. This thesis concludes with a proposal for an alternative approach to research on the 'risk' of the unwanted health outcomes of sexual activity. This approach would examine the social context of sexual behaviour and the construction of risk for social groups sharing health needs, and risks, rather than focussing on individuals. A corollary to this would be the study of the prevalence of STI within the sexual networks of these different social groups. Combining social research with sexual network analysis should provide a more accurate picture of what constitutes 'risky' behaviour for whom. An advantage of this alternative approach is that it breaks up the unitary categories of 'adolescents' and 'young women'. In practical terms, knowing which groups of young women are most at risk of unwanted reproductive health outcomes and why could provide the key to more effective ways of targeting health interventions.

APPENDICES

Appendix 1 : Project Organogram

Principal Investigators

Dr Loretta Brabin (LSTM) and Professor Nimi Briggs (University of Port Harcourt)

Social study

Julia Kemp

Rural team:
Tombari Gbarabe
Alee Kinah
Sunday Nakuu
Susan Taol (ST)
Mercy Giadom (MG)
Rose Nyama

Urban peer team:
Vera Etim
Tina Earnest
Benedicta Bona
Didi Tunimigha
Toma Amachree
Ruth Amachree

Community field team:
Boma Ogolo
Sonita Reginald
Mable Noble
Patience Ekeke
Tekena Dakolo
Stella Wokekoro
Veronica Wokekoro
Ndidi Okoye
Chinenye Idika
Beatrice Nnah
Joyce Olumati
Happiness Ogoloma

Clinical study

Dr John Ikimalo (JI)

Rural team:
Dr N Inimgba
Dr Tolu Odukoya
Dr 'Seye Babatunde

Rural treatment:
Rose Nyama
Elizabeth Pianwe

Urban team:
Dr 'Seye Babatunde (SB)
Dr Chizoba Ikokwu-Wonodi (CIW)
Dr N'Gozi Nwosu
Mrs D C N Igbokwe
Barisi Penu

Urban treatment:
Wendy Doherty
Jeannette Van Gerven
Susan Toal (ST)

Laboratory study

Dr OK Obunge

Lab Team:
Mrs C Blankson
Mr O Onyido
Mr A Iniowuary
Mr T Appiah

Epidemiology/Statistics

Nicola Dollimore (ND)

Data entry/management team:
Bola Lawal
Felicia Usim

Other Academic Input

Professor CA Hart (Department of Medical Microbiology and Genito-Urinary Medicine, University of Liverpool)

Dr N'Gozi Odu (State Commission for Women)

Nick Perrin (NP)
Orogbum Community Mapping

Other support staff

Mrs IS Alalibo (accounts)
O Ogbuka (driver)

Appendix 2 : Clinical and Microbiological Investigation

General and gynaecological examinations

Height, weight, and blood pressure were measured and clinical signs and symptoms of illness noted. If anaemia was severe, women were referred to hospital. Antimalarials were prescibed for a presumptive diagnosis of malaria.

Gynecological examination was performed by one of two doctors supervised by a consultant gynaecologist. The cervix was described as abnormal if oedematous or friable, or when mucopurulent endocervical discharge was present. A sterile high vaginal swab was taken which was rolled on a microscope slide for gram stain. The swab was then placed in Amies transport medium for a vaginal wet mount and culture for *Candida albicans* and *Trichomonas vaginalis*. After the ectocervix had been cleared of secretions, two dracon-coated swabs were placed in the cervical os and rotated to collect endocervical secretions and cells. Swabs for culture of *Neisseria gonorrhoeae* were inoculated directly onto Thayer-Martin selective agar medium and placed in a candle extinction jar. A swab for antigen detection of *Chlamydia trachomatis* was kept at 4°C in Mastatyme transport medium. After removal of the speculum, a bimanual examination was carried out to test for tenderness of the fornices and excitation of the cervix. A clinical diagnosis of pelvic-inflammatory disease was made when lower abdominal pain and/or tenderness of the fornices was reported with adnexal tenderness. After examination, a 5ml blood sample was taken for serological tests for treponemal infection. Women with vesico-vaginal fistulae, uterine prolapse, tumours, suspected pelvic inflammatory disease, or suspected ectopic pregnancy were referred to University of Port Harcourt Teaching Hospital.

Laboratory assessments

Samples were transported to the laboratory at University of Port Harcourt Teaching Hospital within 4-6 hours of collection. Gram-stained endocervical smears were examined microscopically and polymorphonuclear cells counted. Slides were first evaluated at x100 magnification to identify areas of cervical mucous without squamous epithelial cells. If polymorphs were distributed in a patchy fashion, representative areas containing the highest concentration were counted in non-adjacent x1000 fields and the mean numerical values calculated for each patients specimen. Wet mount microscopy of high vaginal swabs was done for detection of *T. vaginalis*. Gonococcal culture specimens were incubated at 35-37°C for up to 48 hours. Sugar-use test was done on all oxidase-positive gram-negative diplococci with Flynn and Watkins slopes. Antimicrobial sensitivity was done on gonococcal isolates. A subsample of frozen gonococcal cultures was sent back to the Department of Medical Microbiology, University of Liverpool, for quality control. All frozen isolates that survived transport were confirmed as *N. gonorrhoeae*. Cervical swabs for chlamydia were frozen at -70°C and then processed within 5-7 days of collection by an ELISA method (Mastazyme, Mast Laboratories, Bootle, UK). All positive and borderline specimens were confirmed by direct-immunoflourescence (IMAGEN, Novo Bio Labs, High Wycombe, UK). For candidosis, culture on Sabouraud's dextrose agar was done within 4-6 hours of collection. A 5ml blood sample was taken for syphilis and tested with the rapid plasma reagin (RPR) and *Treponema pallidum* haemoglutination assay (TPHA) was performed on all positive RPR samples. A positive result for both TPHA and RPR was regarded as indicative of active syphilis. Positive results could also have been due to non-venereal treponematoses although clinical examination carried out during surveys did not reveal evidence of these diseases. Additional tests performed in this urban survey were (a) evaluation of mid-stream urine for on-spot dipstick urinalysis (leukocyte esterase test), (b) haemoglobins, using the Hemocue method and (c) vulval swabs for detecting *C. albicans* were collected from non-sexually active girls.

Appendix 3 : Training Peer Interviewers, Feb '94

Summary

A team of six female peer interviewers were trained for the urban study to administer the structured questionnaire about adolescent girls' sexual behaviour. Twelve candidates were recommended by a local youth organisation, the War Against Injustice (WAI) Brigade. All had completed secondary school and were waiting results of the national exams for entry into University. They were trained through a five-day workshop which included exercises in talking about sensitive issues, overcoming personal inhibitions about talking about sex, having a non-judgmental attitude, interview techniques, and questionnaire completion. At the end of the workshop six girls were selected by the author, the female doctor (CZ), and the community nurse midwives who had administered the questionnaires in the rural study (ST & MG). In the following week less formal training was continued and the questionnaire was pilot tested with young clients at a family planning clinic at the University of Port Harcourt Teaching Hospital.

Table ii: Peer Interviewers' Training Workshop Timetable

	Early Morning 08.00-10.00	Late Morning 10.30-12.30	Afternoon 14.00-16.00
M	Introduction to project	Introduction of each other	Golden rules for questionnaire completion
T	Talking about body parts	Values & judgments	Questionnaire
W	Film: Consequences	Medical information	Questionnaire
T	Counselling skills video	Rapport building	Interviewing techniques
F	Written test	Assessed interviews	Practice interviews

Appendix 4 Training Community Field Workers, July '94

Summary

A team of fifteen young female field workers were selected from 27 young women candidates recommended by the Orogbum community and the War Against Injustice "WAI" Brigade. Six teams of two field workers, with three supervisors were selected during a three-day training workshop for all candidates. This group were then given further, less formal training. The training workshop included: questionnaire completion, cluster formation, and the purpose of the research, and piloting of the cluster survey instrument.

Table iii : Community Fieldworkers' Training Workshop Timetable

	Early Morning 08.00-10.00	**Late Morning 10.30-12.30**	**Afternoon 14.00-16.00**
TUE	Introduction	Entering Compounds	Questionnaire
WED	Community map	Problem solving	Field Test
THU	Feedback on fieldwork	Selection of team	Close

Appendix 5 : Rural Questionnaire

see Inclusion "Reproductive Morbidity Survey", following 4 pages

REPRODUCTIVE MORBIDITY SURVEY

SURVEY NO. _____ DATE _____ CODE NO. _____

NAME: NATIVE _____ CHRISTIAN _____ SURNAME _____

VILLAGE _____ AGE _____ years

HEIGHT _____ metres WEIGHT _____ kgs

SEXUAL / FAMILY HISTORY

1. Are you now?

married _____ YES/NO widowed _____ YES/NO

separated _____ YES/NO unmarried _____ YES/NO

If married:

2. Does your husband have other wives? _____ YES/NO

If other wives:

3. How many wives does your husband have? _____

4. Which number wife are you? No. _____

5. How many living children do you have? _____

6. How many of your children have died? _____

7. How many of your children died immediately after birth? _____

8. Are you pregnant now? _____ YES/NO

9. Have you started / are you still menstruating _____ YES/NO

IF WOMAN IS PREGNANT, HAS NOT STARTED MENSTRUATING OR HAS REACHED MENOPAUSE, NO FURTHER QUESTIONS TO BE ASKED. COMPLETE GENERAL EXAMINATION ONLY. PREGNANT WOMEN SHOULD BE REFFERED TO ANTE-NATAL CLINIC.

GYNAECOLOGICAL HISTORY

10. Do your menstrual periods come regularly every month? _____ YES/NO

11. Do you pass clots when you menstruate? _____ YES/NO

12. Are you menstruating now? _____ YES/NO

13. When was your last menstrual period? _____

14. Do you have a vaginal discharge? _____ YES/NO

If discharge:

15. Do you itch with it? _____ YES/NO

16. Have you had treatment for this discharge? _____ YES/NO

CODE NO. _____

If treatment:

17. What treatment did you take?

oral native medicine	_____	YES/NO	antibiotics	_____	YES/NO
native vaginal insertion	_____	YES/NO	others	_____	YES/NO

18. Have you taken antibiotics in the last week? _____ YES/NO

IF YES, NAME _____

If treatment:

19. Who treated you?

health centre / clinic	_____	YES/NO	hospital	_____	YES/NO
traditional healers	_____	YES/NO	chemist	_____	YES/NO
TBA	_____	YES/NO	other	_____	YES/NO

20. Have you ever had sexual intercourse? _____ YES/NO

21. Are you using some form of family planning now:

IUCD	_____	YES/NO	PILL	_____	YES/NO
BTL	_____	YES/NO	INJECTION	_____	YES/NO
CONDOM	_____	YES/NO	SAFE PERIOD	_____	YES/NO
WITHDRAWAL	_____	YES/NO	NONE	_____	YES/NO

OTHER _____

CLINICAL EXAMINATION

A. GENERAL EXAMINATION (ALL WOMEN)

TEMPERATURE	_____ °C	PULSE	_____ bpm
B.P.	_____	HAEMOGLOBIN	_____

Pallor	_____	YES/NO	Fever	_____	YES/NO
Oedema	_____	YES/NO	Spleen palpable	_____	YES/NO
Liver palpable	_____	YES/NO	Inguinal lymph nodes	_____	YES/NO
Pregnant	_____	YES/NO			

GENERAL OBSERVATIONS:

TREATMENT GIVEN:

CODE NO. _____

B. EXAMINATION OF SEXUALLY ACTIVE GIRLS AND OLDER WOMEN

VULVA

Clitoridectomy _____ YES/NO

Genital warts _____ YES/NO

Discharge _____ YES/NO

Genital Ulcers _____ YES/NO

VAGINA : ADOLESCENT ONLY

Hymen intact _____ YES/NO

If YES: discontinue examination
If NO: see question 14. If sexual relationship denied, continue examination but refer later to community midwife

VAGINA

Vesico-vaginal fistulae _____ YES/NO (if yes refer to hospital)
Cicatrisation _____ YES/NO (if yes: native insertion used _____ YES/NO)

VAGINA / CERVIX DISCHARGE

Vaginal Discharge YES/NO		Cervical Discharge YES/NO	
White YES/NO	Yellow YES/NO	White YES/NO	Yellow YES/NO
Green YES/NO	Brown YES/NO	Green YES/NO	Brown YES/NO
Purulent YES/NO		Purulent YES/NO	
Sanguinous YES/NO		Sanguinous YES/NO	
Sero-sanguinous YES/NO		Sero-sanguinous YES/NO	
Profuse YES/NO		Profuse YES/NO	
Offensive odour YES/NO		Offensive odour YES/NO	

CERVIX

Healthy _____ YES/NO IF NO: Erosions _____ YES/NO
Tumour _____ YES/NO
ULcer _____ YES/NO

CODE NO. _____

UTERUS

Size:	normal YES/NO	small YES/NO	enlarged YES/NO
Position:	anteverted YES/NO	axial YES/NO	retroverted YES/NO
Mobility:	freely mobile YES/NO	limited mobility YES/NO	immobile YES/NO

ADNEXAE

Palpable _____ YES/NO

Tender _____ YES/NO

Mass _____ YES/NO

GENITAL PROLAPSE _____ YES/NO

(if prolapse, refer to hospital)

If YES 1°_____ YES/NO 2°_____ YES/NO 3°_____ YES/NO

SPECIMENS TAKEN (TICK THOSE TAKEN)

1. VAGINAL SWABS (i) slide smear _____

(ii) Amies Transport medium _____

2. ENDOCERVICAL SWAB (GC) (i) slide smear _____

(ii) Thayer Martin plate _____

(iii) Amies Transport medium _____

3. ENDOCERVICAL SWAB (CHLAMYDIA) (i) Chlamydia Transport medium _____

Appendix 6 : Rural Risk Questionnaire

see Inclusions "Risk Questionnaire - K'Dere", and "Abortion Questionnaire - K'Dere" following 8 pages.

RISK QUESTIONNAIRE - K'DERE

Code no: | | | | |

Name and surname: _____

Invitation status: | 1. STD & abortion | 2. STD no abortion |
| 3. abortion only | 4. controls |

If STD present: | 1. GC only | 2. CT only | 3. both |

Date of interview: | | | | | | |

Interviewer | 1.ST | 2.MG | 3. |

Marital status: ..... | | |

1. marriage, one wife
2. marriage, more than one wife
3. living with partner, part bride price paid
4. daughter in family of girls chosen not to marry but will have a sleeping partner
5. permanent union, without bride price payment
6. widowed, without official concubine
7. widowed but has permanent concubine
8. divorced according to custom
9. separated from husband
10. bridewealth paid by another woman
11. single never married

Has the woman ever paid bride price for another woman? Why?
If a widow without official concubine, why? Does husband have a concubine?

How many sexual partners has she had in the last year?.... | | |

Relationship with partner(s): 1. husband 2. concubine
3. boyfriend 4. casual partner

Partner 1 | | Partner 2 | | Partner 3 | |

Where are partners from and what is their main work?

Frequency of sex in the last month with current partners?

Partner 1 | | | times

Partner 2 | | | times

Partner 3 | | | times

RISK QUESTIONNAIRE - K'DERE

Code no: | | | | |

How old is he?

	years	
Partner 1		1. Much older / 2. Same age / 3. Younger
Partner 2		1. Much older / 2. Same age / 3. Younger
Partner 3		1. Much older / 2. Same age / 3. Younger

Does partner drink heavily?

Partner 1	1. Yes	2. No	3. Don't know
Partner 2	1. Yes	2. No	3. Don't know
Partner 3	1. Yes	2. No	3. Don't know

Does partner smoke?

Partner 1	1. Yes	2. No	3. Don't know
Partner 2	1. Yes	2. No	3. Don't know
Partner 3	1. Yes	2. No	3. Don't know

If partner is <u>not</u> married to woman, is he married at all?

Partner 1	1. Yes	2. No	3. Don't know
Partner 2	1. Yes	2. No	3. Don't know
Partner 3	1. Yes	2. No	3. Don't know

Does he see other women?

Partner 1	1. Yes	2. No	3. Don't know
Partner 2	1. Yes	2. No	3. Don't know
Partner 3	1. Yes	2. No	3. Don't know

Does partner travel regularly outside K'Dere?

Partner 1	1. Yes	2. No	3. Don't know
Partner 2	1. Yes	2. No	3. Don't know
Partner 3	1. Yes	2. No	3. Don't know

RISK QUESTIONNAIRE - K'DERE

Code no: | | | | |

If the partner(s) stays away from K'Dere regularly, what are the reasons? How long does he go for, how often does he come back?

What reasons does the woman give for being with each of the partners? (perhaps because of ceremonies, financial, enjoys sexual intercourse)

Did her partner have a sexually transmitted disease in the last year

Partner 1	1. Yes	2. No	3. Don't know
Partner 2	1. Yes	2. No	3. Don't know
Partner 3	1. Yes	2. No	3. Don't know

If she suspects her partner had an STD in the last year, how did she know? (told her, had symptoms, what were the symptoms, stayed away from her, he was going with other women)

How old was she when she had her first sexual encounter?

1. below 10	2.10-14	3. 15-19	4. Over 20

Was it before her menses started — 1.Yes | 2. No

Was she in school at the time — 1.Yes | 2. No

If in school, which grade? — Class?

1. Primary	2. Junior secondary	3. Senior secondary

RISK QUESTIONNAIRE - K'DERE

Code no: | | | | |

Why did she have her first sexual encounter? Did she feel pressurized at all?

How many sexual partners have you had?

1. just one	2. two	3.3-5	4. 6-8	5. more than 8

If the woman has children:

For the last child, how long after the birth did she stop sexual relations? Who decided when to start again? If partner, did she agree?

Interviewer's Notes:

Woman's knowledge of STD?	1. good	2. inaccurate	3. none
Woman recognised she had an infection?		1. Yes	2. No
Partner notification	1. No STD	2.Yes	3. No
Is a condom used?	1.always	2. sometimes	3 never
Has she ever terminated a pregnancy?		1. Yes	2. No
Is the additional sheet on abortions attached?		1. Yes	2. No
Ease of interview:	1. Easy	2. Difficult	3. Variable
Were responses honest?	1. Yes	2. No	3. Unsure
Likelihood of behavioral change?	1. Yes	2. No	3. Unsure

Comments: Atmosphere? Woman's understanding of relationship?

ABORTION QUESTIONNAIRE - K'DERE

Code no: | | | | |

Name and surname: _____

STD present:	1.none	2. GC only	3. CT only	3. both

Date of interview: | | | | | | |

Interviewer	1.ST	2.MG	3.

How many times has she terminated a pregnancy? |

IF THERE HAS BEEN MORE THAN ONE TERMINATION, CALL THE FIRST ONE TERMINATION ONE AND COMPLETE THE FOLLOWING. CALL SUBSEQUENT ONES, TERMINATION TWO AND THREE AND ATTACH THE SUPPLEMENTARY SHEET.

TERMINATION ONE

What was her age (if not known approximate):

1. 10-14	2. 15-19	3. 20-24	4. 25-29	5. 30-34	6. 35+

Was she at school:	1. Yes	2. No	Grade			

Where was termination performed? (If more than one place put order of visits)

Private clinic		Chemist	
Public hospital		Friend	
herbalist		Other	

Describe the method used?

Cost of termination:

1. Naira	2.Don't know

Who paid ?

1.Partner	2. Self	3. Mother	4. Father	5. Friends	6.Close Family

Who knew about abortion?

1.Partner	2. Mother	3. Father	4. Close friends	5.Close family

ABORTION QUESTIONNAIRE - K'DERE

Code no: | | | | |

What were the side effects?
Did she start to use family planning?
Has she become pregnant since?

Was it her decision to terminate?
What were the reasons?
If unmarried was marriage discussed at the time?

Is she still with the same partner?	1. Yes	2. No
If not, is her current partner aware of the terminations?	1. Yes	2. No

If no, explain:

IS SUPPLEMENTARY SHEET ATTACHED?	1.YES	2.NO

ABORTION QUESTIONNAIRE - K'DERE

Code no: | | | | |

TERMINATION TWO

Name and surname: _____

What was her age (if not known approximate):

1. 10-14	2. 15-19	3. 20-24	4. 25-29	5. 30-34	6. 35+

Was she at school: | 1. Yes | 2. No | Grade | | | |

Where was termination performed? (If more than one place put order of visits)

Private clinic		Chemist	
Public hospital		Friend	
herbalist		Other	

Describe the method used?

Cost of termination:

1. Naira	2.Don't know

Who paid ?

1.Partner	2. Self	3. Mother	4. Father	5. Friends	6.Close Family

Who knew about abortion?

1.Partner	2. Mother	3. Father	4. Close friends	5.Close family

What were the side effects?
Did she start to use family planning?
Has she become pregnant since?

Was it her decision to terminate?
What were the reasons?
If unmarried was marriage discussed at the time?

ABORTION QUESTIONNAIRE - K'DERE

Code no: | | | | |

TERMINATION THREE

Name and surname: _____

What was her age (if not known approximate):

1. 10-14	2. 15-19	3. 20-24	4. 25-29	5. 30-34	6. 35+

Was she at school: | 1. Yes | 2. No | Grade | | | |

Where was termination performed? (If more than one place put order of visits)

Private clinic		Chemist	
Public hospital		Friend	
herbalist		Other	

Describe the method used?

Cost of termination:

1. Naira	2.Don't know

Who paid ?

1.Partner	2. Self	3. Mother	4. Father	5. Friends	6.Close Family

Who knew about abortion?

1.Partner	2. Mother	3. Father	4. Close friends	5.Close family

What were the side effects?
Did she start to use family planning?
Has she become pregnant since?

Was it her decision to terminate?
What were the reasons?
If unmarried was marriage discussed at the time?

Appendix 7 : Urban Social Questionnaire

see Inclusion "Port Harcourt Reproductive Health Project, Urban Social Survey", following 5 pages

USOC 12/05/94
PORT HARCOURT REPRODUCTIVE HEALTH PROJECT : URBAN SOCIAL SURVEY

IF A WOMAN IS PRE-MENARCHIAL OR POST MENOPAUSAL SHE SHOULD BE EXCLUDED FROM THIS SURVEY

1. BASIC DATA

1.1 Name: ... WNAME

1.2 Study code number : ..... SCODNO

1.3 Date of interview :..... DINT

1.4 Interviewer code : ..... ICOD

1.5 Are you currently in school : ..... 1. yes | 2. no — INSCHOOL

1.6 School name and code number :_____ SCHOOLNO
[IF NOT CURRENTLY IN SCHOOL ENTER 88]

1.7 Current grade in school or highest grade reached:

1. No schooling	2. Primary	3. Junior Secondary		EDLEV1
4. Senior Secondary	5.Old system secondary	6. Uni. or College	9. NK	

Class number : EDLEV2

2. DEMOGRAPHIC DATA

2.1 Age in years : ..... WAGE

2.2 Area of residence in Port Harcourt:..... 1. Orogbum | 2. Other — OROGBUM

2.3 Marital status:

1. marriage, one wife	2. marriage two/more wives	3. living with partner	
4. widowed, no concubine	5. widowed with concubine	6. married but separated	MARIT
7. single never married	8. Other (sp):	9.NK	

2.4 Main occupation

1. student	2. applicant	3. youth corper	4. petty trader	
5. trade for someone	6. labourer	7. major business	8. clerical/admin.	OCCUPW
9. professional	10. house girl	11. house wife	12. no work	
13. seamstress	14. other (sp)		99. NK	

2.5 Who do you live with?

1. mother and father	2. father	3. mother	4. partner	5. relative	LWITH
6. campus or school	7. friends	8. as house girl		9. alone	99.NK

2.6 Have you ever had sexual relations? 1. yes | 2. no | 3. no answer — ICA

IF WOMAN HAS NEVER HAD SEXUAL INTERCOURSE, OR DOES NOT ANSWER EVEN AFTER FURTHER EXPLANATION OF PROJECT, THEN DRAW DOUBLE LINES THROUGH SECTIONS 3,4,5,6,7 AND GO TO SECTION 8.

3. SEXUAL HISTORY

3.1 How many sexual partners have you had in the last year?..... .. PARTYR

3.2 How many sexual partners have you had in the last three months..... PART3M

IF NONE DRAW DOUBLE LINE THROUGH REST OF Q3 SKIP TO Q4.
FOR PARTNERS IN THE LAST THREE MONTHS COMPLETE FOR EACH PARTNER:

	P1	P2	P3	
3.3 Age in years (IF CANNOT ESTIMATE THEN INSERT MO FOR MUCH OLDER; SA FOR SAME AGE OR SLIGHTLY OLDER; MY FOR MUCH YOUNGER)				AGEP1
3.4 What is his relationship to you? INSERT 1. HUSBAND 2. CONCUBINE 3. BOYFRIEND 4. CASUAL PARTNER				RELP1
3.5 Is he married: INSERT 1. YES; 2. NO; 3. WOMAN UNSURE				MARRYP1

3.6 What is is main occupation? OCCUPP1

INSERT:
1. STUDENT 2. APPLICANT 3. YOUTH CORPER
4. PETTY BUSINESS 5. TRADE FOR SOMEONE 6. LABOURER
5. TRADE FOR SOMEONE 6. LABOURER 7. MAJOR BUSINESS
8. CLERICAL/ADMIN 9. PROFESSIONAL 10. EMPLOYED BY COMPANY
11. CYCLIST OR TAXI DRIVER 12. NO WORK 13.OTHER (sp)_____ 99.

3.7 Is he the same ethnic group with you? ETHP1
INSERT 1. YES 2. NO 9. NK

3.8 Do you expect to marry him (any)? EXPWED

1. yes	2. no
3. already married	4. don't know

3.9 Does he (or any of them) see other women? AFFANY

1. Yes, definitely	2. suspect yes	4. definitely not

3.10 Does he (or any of them) travel away from Port Harcourt without you? TRAVANY

1.almost all the time	2.two weeks/more per month	3.one/two week per month	
4. weekends or less	5.less then once a month	6. never	9. NK

3.11 Have any of these partners had any problems on their private parts in the last three months?
(IF NOT MENTIONED SPONTANEOUSLY GO ON TO ASK EACH QUESTION)

Pus or discharge from their penis?	1. yes spont	2. yes prompt	3.no	9.NK	PPUS
Any ulcers or wounds	1. yes spont	2. yes prompt	3.no	9.NK	PULC
Pain while urinating	1. yes spont	2. yes prompt	3.no	9.NK	PURINP

4. PAST SEXUAL HISTORY

4.1 Age in years when you had your first sexual encounter?..... | | | FSWAGE

4.2 Age in years of your first partner then? (IF CANNOT ESTIMATE THEN INSERT MO IF MUCH OLDER; SA IF ABOUT SAME AGE; MY IF MUCH YOUNGER) | | | FSPAGE

4.3 Why did you have sexual relations then, did you feel any pressure?

1. both agreed	2. she requested, he agreed	3. he requested, she agreed	FSREAS
4. peer pressure	5. he demanded she did not agree	9.NK	

Comment: _____

4.4 Did you continue to have sexual relations with him?... | 1. yes | 2. no | FSCONT

4.5 How many sexual partners have you ever had? ..... | | NUMPART

5. PREGNANCY HISTORY

5.1 Have you ever been pregnant?..... | 1. yes | 2. no | 9. NK | EPREG

[IF NO, DRAW A DOUBLE LINE THROUGH Q's 5-6 AND SKIP TO Q7]

5.2 How many live born children have you ever had? : ..... | | CEB
[ENTER 00 IF NONE]

5.3 How many are still alive and living with you? : ..... | | CES1

5.4 How many are still alive and living else where? : ..... | | CES2

FOR WOMEN OUT OF SCHOOL ASK IF SHE HAS EVER WANTED TO BECOME PREGNANT AND HAS NOT BEEN ABLE TO. QUESTION HER FOR ANY MEDICAL REASONS WHY SHE MIGHT NOT BECOME PREGNANT. MAKE AN ASSESSMENT OF SIGNS OF SECONDARY INFERTILITY:

5.5 Interviewer assessment that client has secondary infertility:

1. yes	2. no	9. NK	SECINF

6. TERMINATION HISTORY

6.1 Have you ever terminated a pregnancy, if yes how many times?..... | | NUMABS

IF NO TERMINATION OF PREGNANCY, ENTER ZERO THEN DRAW A DOUBLE LINE THROUGH SECTION 6 AND GO TO SECTION 7.
FOR THE FOLLOWING QUESTIONS USE THE **LAST** TERMINATION:

6.2 Who did you discuss it with?..... First person .... | | ABDISC1

..... Second person ... | | ABDISC2

1. no one
2. partner
3. parents
4. close friends
5. close relatives
6. other
8. not applicable
9. NK

6.3 Where did you go first for the termination?..... ☐ ABSITE1

6.4 If unsuccessful, where did you go second?..... ☐ ABSITE2

1. public hospital
2. private clinic
3. chemist
4. private house
5. alone
6. native doctor
7. friend/partner
8. not applicable
9. NK

6.5 During the termination was anything put inside your vagina?

1. yes	2. no	9. NK	ABINS

If YES Sp: _____

6.6 Did you have any problems after the termination? (IF NOT MENTIONED SPONTANEOUSLY GO ON TO ASK EACH QUESTION)

Severe lower abdominal pain (for more than two days)?

1. yes, spontaneous	2. yes, prompted	3. no	9.NK	ABLAP

Continuous heavy blood loss or prolonged light vaginal bleeding?

1. yes, spontaneous	2. yes, prompted	3. no	9.NK	ABBLD

Offensive vaginal discharge

1. yes, spontaneous	2. yes, prompted	3. no	9.NK	ABVDIS

Fever after the termination (not more than two weeks after)

1. yes, spontaneous	2. yes, prompted	3. no	9.NK	ABFEVER

Did you repeat the termination?

1. yes, spontaneous	2. yes, prompted	3. no	9.NK	ABREP

6.7 Were you in school when you were pregnant that time?

1. yes	2. no	9.NK	ABINED

6.8 If YES, did you terminate because you wanted to continue schooling?

1. yes	2. no	8.NA	ABREAS

6.9 Who paid most for the termination?..... ☐ ABPAY

1. self
2. partner
3. parents
4. close friends
5. close relatives
6. other
7. no cost
9. NK

6.10 How many months were you pregnant before you terminated? ☐ | 2. NK ABMTHS

7. CONTRACEPTIVE USE

7.1 Are you using anything now which stops you becoming pregnant? . | | | STOPPREG

1. nothing
2. pills
3. condom
4. IUCD/coil
5. injection
6. BTL
7. safe period
8. other modern methods (Norplan, douche, diaphragm, foam)
9. withdrawal
10. native medicine or charm
11. strong alcohol
12. prayer
13. Andrew's Liver Salts
14. unknown tablets
15. no partner/abstinence
16. other (sp) _____

7.2 Do you have an IUCD/coil, if so how long ago was it inserted?

IF NO IUCD, ENTER 88 AND CIRCLE 8

		1. mth	2. yrs	8. NA	IUDNOW

7.3 Do you use a condom?..... .

1. always	2. sometimes	3. never	USECON

7.4 Have you ever used any other modern family planning?
MENTION ALL TYPES

	1. yes	2. no	9.NK	
IUCD/coil	1. yes	2. no	9.NK	EVPILL
Oral pills.....	1. yes	2. no	9.NK	EVPILL
Injection	1. yes	2. no	9.NK	EVINJECT
BTL.....	1. yes	2. no	9.NK	EVBTL
Safe period	1. yes	2. no	9.NK	EVSAFEP

8. APPOINTMENT

ENSURE THE WOMAN IS GIVEN A FULL EXPLANATION OF THE PURPOSE OF SEEING THE DOCTOR AND THE EXAMINATION

8.1 What is the date of the first day of your last menses? | | | | | | | LMP

8.2 Appointment for clinical examination: ..... | | | | | | | CLINDAT

**********END OF INTERVIEW**********

9. SUPERVISION

9.1 If supervised interview, supervisor code | | | SUPE

Checked by_____ Date: ____/ ___/ ___

Appendix 8 : Urban Clinical Questionnaire

see Inclusion "Port Harcourt Reproductive Health Project, Urban Clinical Survey", following 6 pages

10/05/94 UMED

PORT HARCOURT REPRODUCTIVE HEALTH PROJECT : URBAN CLINICAL SURVEY

1. BASIC DATA

Woman's identification

1.1 Name : ..... WNAME

1.2 Study code number : ..... SCODNO

1.3 Date of clinical examination : ..... DINT

1.4 Nurse code ..... NCOD

2. ANTHROPOMETRIC DATA

2.1 Height [IN CM]: [ENTER 999.9 IF NOT MEASURED]..... HEIGHT

2.2 Weight [IN KG]: [ENTER 99.9..IF NOT MEASURED..... WEIGHT

2.3 Blood pressure ..... Sys: Dias: BPS & D

2.4 Urine sample taken? UREXAM

1. Yes	2. No, woman refused	3. No, empty bladder
4. No, other (sp)		

[SPECIFY IF OTHER]:

2.5 LED RESULTS
[DRAW DOUBLE LINE THROUGH IF NO URINE TEST]

a Leukocytes .	1.	2.+	3. ++	4. +++	LEUK
b Nitrites ...	1.	2.+	3. ++	4. +++	NITE
c pH	1.	2.+	3. ++	4. +++	PH
d Glucose ...	1.	2.+	3. ++	4. +++	GLUC
. e Protein	1.	2.+	3. ++	4. +++	PROT

****

3. Clinician taking history [CODE] ..... CHCOD

4 ANTIBIOTIC USE:

4.1 Have you taken antibiotics in the last week? ..... ANTIBI

1. Yes	2. No	9. NK

IF YES,CONTINUE. IF NO CIRCLE 8(NA) OR ENTER 88 FOR REST OF Q4 AND SKIP TO Q5

4.2 Which type? ANTIBIT

1. Tetracycline	2. Ampicillin	3. Other	4. Unsure	8. NA

4.3 How many? ..... ANTIBIN

5. VAGINAL DISCHARGE

5.1a Do you have a vaginal discharge?	1. Yes / 2. No	WVD

[IF YES, CONTINUE, IF NO CIRCLE 8 FOR REST OF QUESTION 5 AND GO TO Q6]

5.1b For how long have you had this?.....	1. Always / 2.Recently / 8. NA	WVDT
5.2 Is it so heavy that you need to put/use something for it?	1. Yes / 2. No / 8. NA	WVDHEV
5.3 What colour is it?	1. / 2. White/cream / 3. Yellow / 4. Green / 5. Brown / 8. NA	WVDCOL
5.4 Does it smell?	1. Yes / 2. No / 8. NA	WODOUR
5.5 Do you itch with it?	1. Yes / 2. No / 8. NA	WITCH
5.6 Have you had treatment for this discharge?	1. Yes / 2. No / 8. NA	TREATVD

5.7 What treatment was this?	1. Oral trad medicine	2. Trad vaginal insertion		TVDTYPE
3. Cream/pessaries	4. Antibiotics	5. Other (sp)	8. NA	

6. RECENT MENSTRUATION

6.1 Have you delivered a child or had an abortion in the last 12 months?

1. No	2. Yes, delivery	3. Yes, abortion	DABYR

[IF YES, CONTINUE. IF NO, ENTER 8 (NA) FOR QUESTION 6.2 AND SKIP TO Q6.3]

6.2 Have you started menstruating again since?.....	1. Yes / 2. No / 8. NA	MENYR
6.3 How long ago was your last menstrual period/abortion/delivery	/ / 1.Days / 2. Mths / 8. NA	LMP1&2

7. MENSTRUAL PATTERN [ASK OF ALL WOMEN EVEN IF NOT CURRENTLY MENSTRUATING]

7.1a Are your periods painful? Have they always been like this?

1. Yes, since always	2. Yes, recently	3. No

IF YES, RECENTLY b.For how long have they been painful?..... [IF NO ENTER 88 (NA) / CIRCLE 8]	/ / 1. Mth / 2. Yrs / 8. NA	PPAINT
7.2a Do you pass clots or bleed heavily when you menstruate?	1. Yes / 2. No	CLOTS
b.IF YES, Since how long ago? .... [IF NO ENTER 88 (NA) / CIRCLE 8]	/ / 1. Mth / 2. Yrs / 8. NA	CLOTST
c. IF YES, since start of menses?.....	1. Yes / 2. No / 9. NK	CLOTMEN
7.3a In between periods, do you bleed?	1. Yes / 2. No	IMB
b.IF YES, Since how long ago ? ..... [IF NO ENTER 88 (NA) / CIRCLE 8]	/ / 1. Mth / 2. Yrs / 8. NA	IMBT

8.LOWER ABDOMINAL PAIN

8.1a Do you have lower adbominal pain (not associated with your periods)	1. Yes | 2. No	LAP
b IF YES, Since how long ago ? ..... [IF NO ENTER 88 (NA) & CIRCLE 8]	| | 1.Days | 2. Mths | 8. NA	LAPT

9. URINATION

9.1a Do you have painful urination ?	1. Yes | 2. No	URPAIN
b IF YES, Since how long ago ? .... [IF NO ENTER 88 (NA) & CIRCLE 8]	| | 1.Days | 2. Mths | 8. NA	URPAINT
9.2 Frequency ?	1. Yes | 2. No	URFREQ
9.3 Urgency ?	1. Yes | 2. No	URURG

10. SEXUAL ACTIVITY

10.1 Have you ever had sexual intercourse?	1. Yes | 2. No	ICB

11. BLOOD TESTING

11.1 Haemoglobin Measurement taken?

1. Yes	2. No, woman refused	3. No, equipment problem	4. No, other(specify)	HBEXAM

[SPECIFY IF OTHER: _____

11.2 Hb reading: [ENTER 88, NOT APPLICABLE IF NO MEASUREMENT TAKEN] | | | . | | HB

11.3 VDRL blood sample taken?

1. Yes	2. No, woman refused	3. No, equipment problem	4. No, other(specify)	VDRL

[SPECIFY IF OTHER: _____

11.4 Assessment of sexual activity	1. Yes | 2. Repeated No	

12. CLINICAL EXAMINATION

12.1 Clinicians staff code	|	CECOD
12.2 General examination done?.	1. Yes | 2. No,woman refused | 3. No, other (sp)	GEXAM

[IF NO EXAMINATION DONE, DRAW DOUBLE DIAGONAL LINE THROUGH ALL REMAINING QUESTIONS

12.3 Pallor	1. Yes	2. No	9. NK	PALLOR
12.4 Fever	1. Yes	2. No	9. NK	FEVER
12.5 Oedema	1. Yes	2. No	9. NK	OEDEMA
12.6 Spleen palpable	1. Yes	2. No	9. NK	SPALP
12.7 Liver Palpable	1. Yes	2. No	9. NK	LPALP
12.8 Inguinal Lymph nodes	1. Yes	2. No	9. NK	LNODE
12.9 Is woman pregnant?	1. Yes	2. No	9. NK	NPREG

13. LOWER ABDOMEN

13.1 Lower abdo tendernes	1. No	2.Yes,sides	3.Y,central	4.Y,all over	9. NK	ABTEN
13.2 Rebound tenderness..	1. No	2.Yes,sides	3.Y,central	4.Y,all over	9. NK	ABRTEN
13.3 Masses on lower abdo	1. No	2.Yes,sides	3.Y,central	4.Y,all over	9. NK	ABMASS

14. VULVA

14.1 Vulval examination done?..	1. Yes	2. No,woman refused	3. No, other (sp)	VULEXAM

Specify if other : _____

14.2 Genital warts.....	1. Yes	2. No	9. NK	GWART
14.3 Genital ulcers.....	1. Yes	2. No	9. NK	GULC
14.4 Clitoridectomy.....	1. Yes	2. No	9. NK	CLIT

15. HYMEN [EXAMINE FOR ALL GIRLS/WOMEN REGARDLESS OF SEXUAL ACTIVITY]2

15.1 Hymen intact?.....	1. Yes	2. No	3. Not examined	HYMEN

IF YES: CEASE EXAMINATION & DRAW DOUBLE LINE THROUGH REMAINING QUESTIONS

IF NO BUT WOMAN HAS TWICE PREVIOUSLY DENIED SEXUAL ACTIVTIES : RECHECK FOR SEXUAL ACTIVITY IN Q15.2 IF STILL NO, CEASE EXAM.

IF NO AND WOMAN HAS ADMITTED SEX PREVIOUSLY : ENTER 8 FOR Q15.2 & THEN CONTINUE.

15.2 Has woman ever had any sexual relationships?	1. Yes	2. No	8. NA	9. NK	ICC

16. VAGINA

16.1 Vaginal examination conducted?

1. Yes	2. No,woman refused	3. No,hymen intact	4. No,not sexually active	VAGEXAM
5. No,exam too painful		6. Other(sp)		

[IF NO EXAMINATION DONE, DRAW DOUBLE DIAGONAL LINE THROUGH ALL REMAINING QUESTIONS

16.2 Vaginal discharge	1. None	2. White/cream	3. Yellow	4. Green	5. Brown	VDCOL

[IF YES,CONTINUE.IF NO DISCHARGE,CIRCLE 8 (NA) FOR REST OF Q16 & SKIP TO Q17]

16.3 Discharge.. consistency	1. Frothy	2. Thick/curdlike	3. Mucoid	4. Other(sp)	8. NA	VDCON

16.4 Is discharge purulent?	1. Yes	2. No	8. NA	VPURUL
16.5 Does discharge have an offensive odour?	1. Yes	2. No	8. NA	VDODO
16.6 Is it blood stained?	1. Yes	2. No	8. NA	VDBLD

17. CERVIX

17.1 Erosion

1. No	2. Yes ectropium	3. Y oedematous	4. Y metaplasia	5. Y other	9. NK	CEROS

17.2 Other inflammatory signs of cervix	1. Yes	2. No	9. NK	CINFLAM
17.3 Tumour	1. Yes	2. No	9. NK	CTUM
17.4 Ulcer	1. Yes	2. No	9. NK	CULC

17.5 Cervical discharge	1. None	2. White/cream	3. Yellow	4. Green	5. Brown	CDCOL

[IF YES,CONTINUE.IF NO DISCHARGE,CIRCLE 8 (NA) FOR REST OF Q17 & SKIP TO Q18]

17.6 Discharge.. consistency	1. Frothy	2. Thick/curdlike	3. Mucoid	4. Other(sp)	8. NA	CDCON

17.7 Is discharge purulent?	1. Yes	2. No	8. NA	CPURUL
17.8 Does discharge have an offensive odour?	1. Yes	2. No	8. NA	CDODO

18. UTERUS

18.1 Bimanual examination done?	1. Yes	2. No,woman refused	3. No, other(sp)	CEREXAM

Specify if other : _____

18.2 Size	1. Normal	2. Small	3. Enlarged	9. NK	USIZE
18.3 Mobility	1. Freely	2. Limited	3. Immobile	9. NK	UMOBILE

19. ADNEXAE

19.1 Palpable.....	1. Yes	2. No	9. NK	ADPALP
19.2 Tender.....	1. Yes	2. No	9. NK	ADTEND
19.3 Mass	1. Yes	2. No	9. NK	ADMASS

20. OTHER

20.1 Cervical contact bleeding.....	1. Yes	2. No	9. NK	CBLEED
20.2 Cervical excitation tenderness.....	1. Yes	2. No	9. NK	CTEND

20.3 Clinical signs of PID?	1. Yes	2. No	9. NK	CPID

20.4 Other abnormalities

1. None	2. Genital prolapse	3. VVF	4. Cicatrisation	5. Other (sp)	ABNORM

SPECIFY IF OTHER _____

21. SPECIMENS TAKEN

			IF NOT TAKEN, GIVE REASON	
Higer Vaginal Swabs				
21.1 Slide	1. Yes	2. No	_____	VSMEAR
21.2 Plate	1. Yes	2. No	_____	
21.3 Transport Medium...	1. Yes	2. No	_____	VMEDIUM
Endo Cervical Swabs				
21.4 Slide	1. Yes	2. No	_____	CSMEAR
21.5 Thayer Martin plate	1. Yes	2. No	_____	CMARTIN
21.6 Transport Medium...	1. Yes	2. No	_____	CAMIES
21.7 Chlamydia Medium..	1. Yes	2. No	_____	CCLAM

Checked By _____ On date ___/___/___ Supervised By:.... [ ][ ] SUPE
IF THIS WAS A REINTERVIEW, FILE SEPARATELY AND WRITE Q.C. ON PAGE 1

Appendix 9 : Urban Tracer Card

see Inclusion "Reproductive Health Project, Urban Tracer Card", following page

08/03/94 REPRODUCTIVE HEALTH PROJECT: URBAN TRACER CARD

IDENTIFICATION

1 Name &code number

2 Age IN YEARS .....

3 Registration address _____

_____

4 Regist:____ ____ On:____/____/

5. Social form ____ ____ On:____/____/____ By completed by

ICA 1.Yes 2.No

NEXT APPOINTMENT

Date:	Time:	Place:	For:	Seen on date:

CLINICAL NOTES (Circle those symptoms/signs reported/seen) PREGNANCY: signs

HISTORY: Itchy vaginal discharge Intermenstrual bleeding Lower abdominal pain

LOWER ABDOMEN: Tenderness Rebound tenderness Masses

DISCHARGE: Vaginal Consistency:_____ Purulent Offensive

Cervical Consistency:_____ Purulent Offensive

CERVIX : Inflammatory signs Excitation tenderness

ADNEXAE : Palpable Tender Mass PID: Clinical signs PID

Specify:

SAMPLES TAKEN :

Sample type	Date taken:	Received at lab by:
Blood		
HVS slide		
HVS Plate	*	*
HVS TMedium		
ICS Slide		
ICS Plate		
ICS Medium		
Chlamydia TM		

Results:

Syphilis	1.Pos	2.Neg	9.NK
Yeasts	1.Pos	2.Neg	9.NK
Other	1.Pos	2.Neg	9.NK
Trichs	1.Pos	2.Neg	9.NK
PMN Count :			
Gonn C	1.Pos	2.Neg	9.NK
Chlamydia	1.Pos	2.Neg	9.NK

Treatment comments: _____

Appendix 10 : Focus Group Discussion Topic Guides

Rural FGD Topic Guide

Introduction and 'rules' for FGD.

1. Story of Lekie: views on pregnancy and abortion
2. Why do young people have boyfriends/girlfriends? Does it include sex?
3. Premarital sex in community: common, approved of, concealed?
4. Methods of Prevention?
5. Name diseases spread by having sex. Effects? Protection?
6. Views on fidelity.
7. Where do young people learn about these matters?

Summarise and close.

Urban FGD Topic Guide

Introduction and 'rules' for FGD.

1. Bag of Tricks Game for methods of 'prevention'
2. For each type:
    i. when does someone use it?
    ii. how does it work?
    iii. where do you find it ?
    iv. and how did you hear of it?
    v. is this the same as abortion?
3. Where do girls go for advice?
4. Where do girls go for prevention?
5. What is abortion?
    i. when in pregnancy does it happen?
    ii. where does it happen?
    iii. how?

Summarise and close.

Appendix 11 : Rural In-Depth Interviews - Responses of Ten Adolescent Women to a Diagnosis of STI

Case 1

Age: 18 years **Marital status: unmarried**

STI: Chlamydia & Trichomonas **Lifetime partners: 2**

She was attending primary school until her father died. She was then sent to Port Harcourt to work as a house girl. She continued school there for a further three years until her senior brother told her to return home. Since then she has been farming a plot given to her by her mother. Her current partner is a fisherman in Cameroon. She thinks that they will marry since she has just delivered a baby. He told her that he was waiting to get enough money to marry her. After she was counselled and treated for STI, her partner also came for treatment. They discussed the infection and agreed to be faithful to each other. She said he denied having other partners. When asked if she believed him she replied "...men are difficult to understand or trace their movement.....man normally leave woman in the house and go outside to do what he likes and his wife would not quarrel with him when he comes back". She had no other partners at that time but had had a previous boyfriend in the past.

Case2

Age: 16 years **Marital status: married**

STI: Chlamydia **Lifetime partners: 1**

She stopped school at elementary 6 because her father did not have any money to continue her education. Shortly after finishing school her husband sent a message to her parents to ask her to marry him. They were not in a relationship beforehand. He is currently in the process of paying the brideprice. He is a fisherman in Cameroon and lives there for part of the year. He is her only sexual partner. She understood that her infection was sexually transmitted. She did not know if her husband has other sexual partners. When she asked him if he had other partners in Cameroon, he denied it and told her to "get away with that talk".

Case 3

Age: 19 years Marital status: unmarried

STI: Chlamydia (with yeast infection) Lifetime partners: 3

She stopped her schooling at elementary 4 level because her mother died and no-one else was able to sponsor her and her sister, although her brothers continued to attend school. She now farms on the family land. She did not discuss her infection with her boyfriend. She was not seeing anyone else at that time and was unsure if he had other partners. Her boyfriend attends school in K'Dere.

Case 4

Age: 17 years **Marital status: unmarried**

STI: Chlamydia **Lifetime partners: 2**

She had attended school until primary 5. She has had two sexual partners. She only had sex once with her first partner and regretted it, so did not see him again. Her second partner was her boyfriend at the time she took part in the survey. He is attending school with her. She did not discuss the infection with him. The relationship ended after a month and she has not had any relationship since. She does not know if he had other partners.

Case 5

Age: 18 years **Marital status: unmarried**

STI: Chlamydia, Trichomonas (with yeast infection) **Lifetime partners: 1**

Still attending school. She was very reticent about talking but said that her boyfriend is her only ever sexual partner. He has finished school and is waiting to go to further education. She thinks he has other sexual partners.

Case 6

Age: 18 years **Marital status: unmarried**

STI: Chlamydia, Trichomonas **Lifetime partners: 2**

Finished school at elementary 6. Since the time of the survey her partner has paid most of the brideprice. She had recently delivered and is in the fattening room. Her partner is a fisherman who lives for part of the year in Cameroon. She was with her husband at the time of the survey. She told him about the infection but he said that he was not the cause and it must be from her former boyfriend. She did not agree but did not want to argue with him. She said "There was no need quarrelling him since both of us knew ourselves that he was responsible". She knows he was seeing other women before they married but thinks that since they married he has not seen anyone else. Before she met her husband she had one previous partner, however he decided to marry another woman.

Case 7

Age: 19 years **Marital status: unmarried**

STI: Gonorrhoea **Lifetime partners: 1**

She is currently unmarried but her partner is in the process of paying the brideprice. She attended school until primary 4, sponsored by her mother and her brother. She stopped because they could no longer afford the school fees. She is now farming. He is her only sexual partner and they have been together for over four years. She understood that the infection was sexually transmitted and said that she discussed the issue with her partner. He did not come forward for treatment because he said that he did not have time. He works away from K'Dere in a flour mill but comes back for weekends. She knows he has another partner with whom he was living in Port Harcourt.

Case 8

Age: 19 years **Marital status: married**

STI: Chlamydia **Lifetime partners: 1**

She never attended school but spent two years in Port Harcourt as a house girl caring for the baby of an Igbo family. Her brother decided that she should return home. When she returned her husband sent a message to her house to ask her to marry him. She was reluctant because she felt she was too young but her mother persuaded her to accept. He is a fisherman who spends part of the year in Cameroon while she stays in K'Dere to farm her husband's land. She had recently delivered a baby and was in the fattening room. She knows that he has outside partners, in particular a woman who was a girlfriend before he was married. She has decided not to confront her husband. Although she said that she is not afraid to speak to him, they do not discuss sexual issues. Furthermore, she said that he quarrels with her when he does not like her behaviour and has beaten her on such occasions.

Case 9

Age: 18 years **Marital status: married**

STI: Chlamydia & Trichomonas **Lifetime partners: 3**

From the age of eight to sixteen she was working in Port Harcourt as a house-girl and attending school. Her mother then sent for her to return to K'Dere and she did not continue her education. She said her mother did not have enough money to train her. She became pregnant after she returned to the village to a boy who refused to marry her. She had another boyfriend at the time of the survey. She understood that the infection was caused by having outside partners. She knew he had other partners and said that she did not like this situation. She said that she did not tell him about the infection or ask him about his other partners because he had a "hot temper" and she

was afraid that he would beat her up. That relationship did not last because she said that the man was from B'Dere (the next village) and people do not intermarry. Since that time she met and married her husband, a mechanic. They have discussed infections and he has told her he will not see other women because he does not want to bring infections home. She is confident in him.

Case 10

Age: 18 years **Marital status: married**

STI: Gonorrhoea **Lifetime partners: 2**

She was educated until primary six which was paid for by her mother. Her husband sent a message to the house shortly after she left school. Her husband is a fisherman in Cameroon. She has been married for several years. Before she married she had another boyfriend but that relationship ended before she agreed to marry her husband. She understood that her infection was sexually transmitted. After she was treated and counselled her husband also came for treatment. She said they discussed the issue but said she did not remember what they said. She said that her husband was not angry. She does not think that he sees other women.

Appendix 12 : Reproductive Tract Infections and Abortion among Adolescent Girls in Rural Nigeria

see Inclusion, reprinted from *The Lancet*, following pages.

Public health

Reproductive tract infections and abortion among adolescent girls in rural Nigeria

Loretta Brabin, Julia Kemp, Orikomaba K Obunge, John Ikimalo, Nicola Dollimore, Ngozi N Odu, C Anthony Hart, Nimi D Briggs

Summary

Few studies from developing countries have investigated reproductive tract infections or other indicators of sexual health among unmarried adolescent girls in rural areas. We have obtained baseline demographic, clinical, and microbiological data on reproductive tract infections and induced abortion in girls in a rural area of southeast Nigeria, in order to assess the need for health care for adolescents.

868 females attended for interview and examination: 458 aged 20 and above and 410 aged 12–19, the latter representing 93·4% of the adolescent population. 43·6% of those <17 and 80·1% aged 17–19 years were sexually active and at least 24·1% had undergone an induced abortion; only 5·3% had ever used a modern contraceptive. Vaginal discharge was reported by 82·4%, though few sought treatment. 94·1% of sexually active adolescents and 97·6% of sexually active women 20 years old or over were gynaecologically examined and screened for reproductive tract infections. Of those aged less than 17, 19·8% had symptomatic candida and 11·1% trichomonas infections. Among those aged 17–19 years, chlamydia was detected in 10·5%, and symptomatic candidosis in 25·6%; this was the group most likely to have any infection (43·8%). 42·1% of sexually active adolescents had experienced either an abortion or a sexually transmitted disease. Syphilis was the only infection for which the incidence clearly increased with age.

Health-care services for adolescents in this community are needed and should include sex education, contraceptive provision (especially barrier methods), and access to treatment for reproductive tract infections. Investments in health for this age group will have an effect on subsequent reproductive health.

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See Commentary page 270

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Introduction

In many developing countries, health care for adolescents is not a priority and adolescents receive the same health-care provision as adults. Feachem et al's[1] review of the burden of disease in developing countries defined only two age categories: adults 15–59 years and children younger than 15. Other studies classify adolescents with young adults aged 15–24 years.[2] Evidence is growing, nonetheless, that adolescent health deserves special attention and that adolescent sexual and reproductive health programmes are needed for several reasons including lower age of sexual maturation and sexual debut seen world wide, inadequate provision of sex and health education, risk of sexually transmitted diseases and unwanted pregnancies, and the growing spread of HIV infection.[3]

Nigeria, with a population of more than 88·5 million,[4] has a large adolescent population. The aims of this study were to obtain demographic, clinical, and microbiological data on several indicators of reproductive health among adolescent girls in a rural community in southeast Nigeria—namely, induced abortion, and reproductive tract and sexually transmitted infections, features known to be associated with a high risk of morbidity and mortality.[5] Previous studies in selected Nigerian women have reported high rates of trichomonas and candida infection,[6–8] but there are few recent studies of sexually transmitted diseases. Abortion is thought to be common among schoolgirls;[9–11] of 50 000 maternal deaths estimated to occur annually, nearly 20 000 are attributed to complications of induced abortion, particularly in teenage and young women.[12] 15–20% of gynaecological admissions to Port Harcourt Teaching Hospital are abortion-related.[12]

Subjects and methods

We investigated a rural community in Rivers State, southeast Nigeria, a region economically dominated by the oil industry with Port Harcourt at its centre. Kegbara Dere (K'Dere) was selected because of its accessibility to Port Harcourt (40 miles). K'Dere, inhabited by the Ogoni people, is a farming and fishing community, and the nutritional status of the population is reasonably good. The village, however, is under-resourced; there is much out-migration, principally for fishing trips to Cameroon or employment in Port Harcourt. There is no electricity supply, and water has not been pumped to standpipes since early 1993. The community now relies on hand-dug wells and streams. K'Dere has a community secondary school and a health centre, but the latter is ill-equipped and under-used.

In November and December, 1992, all households were visited to establish the population of women. Women were informed of the objectives of the study, and further information was given through women's organisations, church services, and the town

crier. One investigator (JK) lived at the health centre throughout the study.

Study sample

It was not acceptable to the community to interview adolescents only, so a random sample of women aged 20 years and above was invited for interview and examination. Exclusion of some women through random selection proved unpopular and, after several weeks, all women of reproductive age (20–49) were invited. Pregnant women were excluded. All menarcheal adolescents (aged 10–19) were then invited to participate.

Interviews and examinations were held between January and July, 1993, at the health centre. Sexual activity was determined through a private interview with a specially trained midwife who spoke Ogoni dialect. Much time was spent talking to groups of girls before interview to explain procedures and assure them that information would be confidential. Surveys entailed a questionnaire, a general and abdominal examination, and gynaecological examination and microbiological tests for women who reported themselves sexually active.

Questionnaire

This included questions about age; educational status; marital, pregnancy, and abortion history; and history of vaginal discharge and treatment, menstrual problems, and contraceptive use.

General examination

Height, weight, and blood pressure were measured and clinical signs and symptoms of illness noted. All women were given 1–2 weeks' supply of iron and folate. If anaemia was severe, women were referred to hospital. Antimalarials were prescribed for a presumptive diagnosis of malaria.

Gynaecological examination

Gynaecological examination was done by one of two Nigerian doctors supervised by a consultant gynaecologist (JI). The cervix was described as abnormal if oedematous or friable, or when mucopurulent endocervical discharge was present. A sterile high vaginal swab was taken which was rolled on a microscope slide for gram stain. It was then placed in Amies transport medium for a vaginal wet mount and culture for *Candida albicans* and *Trichomonas vaginalis*. After the ectocervix had been cleared of secretions, two dacron-coated swabs were placed in the cervical os and rotated to collect endocervical secretions and cells. Swabs for culture of *Neisseria gonorrhoeae* were inoculated directly onto Thayer-Martin selective agar medium and placed in a candle-extinction jar. A swab for antigen detection of *Chlamydia trachomatis* was kept at 4°C in Mastazyme transport medium. After removal of the speculum, a bimanual examination was carried out to test for tenderness of the fornices and excitation of the cervix. A clinical diagnosis of pelvic inflammatory disease was made when lower abdominal pain and/or tenderness of the fornices was reported with adnexal tenderness. After examination, a 5 ml blood sample was taken for serological tests for treponemal infection. Women with vesico-vaginal fistulae, uterine prolapse, tumours, suspected pelvic inflammatory disease, or suspected ectopic pregnancy were referred.

Laboratory assessments

Samples were transported to the laboratory at Port Harcourt within 4–6 h of collection. Gram-stained endocervical smears were examined microscopically and polymorphonuclear cells counted. Slides were first evaluated at ×100 magnification to identify areas of cervical mucus without squamous epithelial cells. If polymorphs were distributed in a patchy fashion, representative areas containing the highest concentration were counted in non-adjacent ×1000 fields and the mean numerical values calculated for each patient's specimen. Wet-mount microscopy of high vaginal swabs was done immediately on arrival at the laboratory for *T vaginalis*. Gonococcal culture specimens were incubated at 35–37°C for up to 48 h. Sugar-use test was done on all oxidase-positive gram-negative diplococci with Flynn and Waitkins slopes. Antimicrobial sensitivity was done on gonococcal isolates. A subsample of frozen gonococcal cultures was sent back to the Department of Medical Microbiology, University of Liverpool, for quality control. All frozen isolates that survived transport were confirmed as *N gonorrhoeae*. Cervical swabs for chlamydia antigen were frozen at −70°C and then processed within 5–7 days of collection by an ELISA method (Mastazyme; Mast Laboratories, Bootle, UK). All positive and borderline specimens were confirmed by direct immunofluorescence (IMAGEN, Novo-Bio Labs, High Wycombe, UK). For candidosis, culture on Sabouraud's dextrose agar was done within 4–6 h of collection. Blood samples for syphilis were tested with the rapid plasma reagin (RPR) test in which positive and negative controls were included. *Treponema pallidum* haemaglutination assay (TPHA) was done on all positive RPR samples. A positive result for both TPHA and RPR was regarded as indicative of active syphilis. Positive results could have been due to non-venereal treponematoses although clinical examination carried out during surveys did not reveal evidence of these diseases.

Age (years)	Number of females*	% currently married	% widowed or separated†	% single	Mean number of liveborn children
12–13	24	0	0	100·0	0
14–16	180	3	0	96·1	0·1
17–19	206	19·0	0	81·0	0·2
20–24	170	53·3	3·0	43·8	1·5
25–29	95	75·8	5·3	18·9	3·6
30–34	92	76·1	17·4	6·5	5·7
35–39	51	68·6	23·6	7·8	7·3
≥40	49	65·3	26·5	8·2	8·2

*Age not known for 1 non-adolescent woman. †3 cases only of separation reported, remainder widowed.

The Ogonis have many different forms of socially sanctioned unions which do not fit into distinct categories of "married" and "single". For simplification "married" is used only where bridewealth has been exchanged. 14% of unions were polygynous.

Table 1: **Age distribution, marital status, and parity of 868 women**

Results

House-to-house visits and interviews established a population of 439 menarcheal adolescents, of whom 93·4% (410) attended for interview and examination. 5·9% refused to attend for interview and 0·7% were sick or recently delivered. Among women aged 20 or more, 88·0% (458) of eligible women attended for interview; 11·0% refused and 1·0% did not attend because of sickness or a recent delivery (table 1). Only 11·2% of girls under 20 were married. Parities were high with a mean of 8·2 livebirths among women aged more than 40. Available data suggest that primary infertility was uncommon; only 3·1% of sexually experienced women over 25 had never been pregnant.

Characteristic*	Adolescents (%)		Non-adolescents (%)	
	<17 years (n=204)	17–19 years (n=206)	20–29 years (n=265)	≥30 years (n=192)†
Education				
Ever in school	92·6	86·3	74·2	33·0
Currently in school	71·6	49·0	0·8	0
Sexual activity				
Ever had intercourse	43·6	80·1	97,7	99·5
Ever used modern family planning method	2·0	4·5	14·2	25·9
Ever pregnant	8·8	37·9	84 5	99·0
Ever had abortion	7·8	21·2	17·9	3·8

*0–29 missing values for variables except abortion, which was not stated in 77 cases. †Age not known for 1 case.

Table 2: **Education status and sexual activity pattern of study population**

Symptoms	Adolescents (%)		Non-adolescents (%)	
	<17 yr (n=204)	17–19 yr (n=206)	20–29 yr (n=265)	≥30 yr (n=192)
Irregular periods	7·4	2·4	5·0	9·5
Passes clots when menstruating	0	1·0	3·1	4·7
Vaginal discharge	77·5	87·4	62·4	65·6
Itching	42·6	50·5	24·7	17·2
Lower abdominal pain <3 weeks duration	8·0	18·2	34·7	39·2

Table 3: **Women reporting symptoms of reproductive morbidity**

Sexual activity

Almost half (43·6%) of adolescents less than 17 reported themselves to be sexually active (table 2). When sexual activity was denied, the hymen was inspected if the girl allowed, although she was still classified according to her own response. Of girls under 17, 7·8% reported at least one abortion, and abortions were reported by 1 in 5 (21·2%) of those aged 17–19. There were no abortions reported among girls aged 12 and 13. Re-interview of a sample of 97 sexually active women showed substantial under-reporting, which decreased with age. 41% of adolescents who initially reported no abortion or did not respond to the question later admitted to an abortion. The abortion rate, therefore, could be as high as 22% among girls less than 17 and 43% among 17–19-year-olds. This high rate of abortion parallels low contraceptive use: only 5·3% who had ever had sex reported ever using a modern contraceptive and only 14·0% of married women were currently using any modern form of contraceptive.

Vaginal discharge

Vaginal discharge was reported by 82·4% of adolescents and 63·0% of women over 20. This included those who replied in the affirmative to a question on staining of underwear. Although itching was frequently reported, especially among adolescents (46·6%), few (2·8%) had sought treatment of any kind, including traditional medicine. 2·0% of all women had taken antibiotics in the 2 weeks before the survey. Other symptoms indicative of reproductive morbidity are shown in table 3.

Gynaecological examination

Examination compliance was high: 96·2% agreed to physical examination, and 94·1% of sexually active adolescents and 97·6% of sexually active women 20 years or over had a gynaecological examination. Vulval ulcers and warts were uncommon (7 and 2 cases, respectively) as was uterine prolapse (0·7%). 8·7% were judged to have an abnormal cervix, the proportion increasing with age from 2·5% in the under-17 age group to 13·9% in the 30-and-over age group. No cervical ulcers were seen and only 3 tumours were found (all in women aged 30 and above). Mucopurulent endocervical discharge was seen in 6·6% of sexually active women. The proportion of women with pelvic inflammatory disease increased with age: 2·5%, 5·2%, 8·0%, and 11·8% in the ascending age groups. There were 2 women with vesico-vaginal fistulae.

Sexually transmitted diseases	Adolescents (%)		Non-adolescents (%)	
	<17 yr (n=204)	17–19 yr (n=206)	20–29 yr (n=265)	≥30 yr* (n=192)
Gonorrhoea	0·5	1·5	2·8	0
Syphilis	1·1	2·1	3·0	5·9
Chlamydia	0·5	8·2	4·8	5·3
Trichomoniasis	4·6	6·6	6·0	9·6
Any sexually transmitted disease	6·3	16·5	15·1	20·0

*Age of 1 woman unknown.

Table 4: **Women (n=868) with sexually transmitted disease by age group**

Reproductive tract infection*	Adolescents (%)		Non-adolescents (%)	
	<17 yr (n=81)	17–19 yr (n=158)	20–29 yr (n=255)	≥30 yr† (n=190)
Gonorrhoea	1·3	1·9	2·9	0
Syphilis	2·7	2·6	3·1	6·0
Chlamydia	1·3	10·5	4·9	5·4
Trichomoniasis	11·1	8·3	6·2	9·6
Symptom-free candidosis	42·0	35·9	25·0	15·5
Candidosis with itching and discharge	19·8	25·6	8·6	3·7
Any sexually transmitted disease‡	16·2	20·9	15·5	20·1
Any reproductive tract infection§	33·3	43·8	22·9	23·4

*Swab results not known for 37–44 women. †Age not known for 1 woman. ‡Because direct evidence of sexual transmission of candida is lacking,[13] yeast infection is not classified as a sexually transmitted disease. Reproductive tract infection here includes gonorrhoea, syphilis, chlamydia, trichomoniasis, and candidosis. §Reproductive tract infection and/or symptomatic (ie with itching and vaginal discharge) yeast infection.

Table 5: **Sexually active women (n=684) examined with reproductive tract infections by age group**

Laboratory tests

36·0% of women had polymorph counts of less than 10, 31·3% 10–19, 14·6% 20–29, and 17·9% more than 30 per high-power field. Polymorph counts were not predictive of infection with *C trachomatis*: 21·6% of chlamydia-positive women and 17·6% of women without chlamydia had a polymorph count of more than 30.

Age-specific and sex-specific prevalence of sexually transmitted disease in this population is shown in table 4. Non-sexually active women are included in the population denominator on the assumption that their prevalence of sexually transmitted disease is zero. Trichomoniasis was most commonly diagnosed, with prevalence peaking in women over 30 years at 9·6%. In all age groups, *C trachomatis* infection was more common than *N gonorrhoeae* infection, with chlamydia peaking at 8·2% in the 17–19 age group and gonorrhoea in the 20–29 age group at 2·8%. Of women positive for any sexually transmitted disease, 10·3% had more than one, with chlamydia and trichomoniasis being the most common mixed infections.

When only sexually active women are considered (table 5), women aged 17–19 had the highest prevalence of chlamydia (10·5%) and candidosis associated with both itching and discharge (25·6%), and were the group most likely to have any infection (43·8%). Girls less than 17 had the highest prevalence of trichomoniasis (11·1%) and 19·8% also had symptomatic candidosis. Candidosis declined with increasing age. Syphilis was the only infection for which the incidence clearly increased with age.

Chlamydia and/or gonococcal infection was associated with a mucopurulent endocervical discharge in only 4·1% of women. 95·9% of cases were symptom-free. Gonorrhoea and/or chlamydia was detected in 7·0% of women with suspected pelvic inflammatory disease and from 8·1% of those without.

Discussion

This study shows that sexually active adolescent girls in this rural area of southeast Nigeria are at risk in relation to several important aspects of reproductive health: 19·4% had a sexually transmitted disease, 40·4% a reproductive tract infection, and in at least 24·1% a pregnancy ending in abortion. At the time of the survey, 42·1% of sexually active girls had experienced either an abortion or a sexually transmitted infection. Facilities for treatment were virtually non-existent. As long as access to contraceptive services and treatment is restricted for adolescent girls, sexual activity is a risky undertaking. This risk, and the potential long-term consequences for reproductive health, have not been adequately appreciated.

Few previous studies have screened a large population of unmarried adolescents or compared morbidity between adolescents and non-adolescents from the same rural community. Studies to date have included few adolescents, especially unmarried girls,[14,15] or have selected only married women.[16,17] This partly reflects the difficulty of studying adolescents. Our high attendance rate was due to intensive preparation and follow-up activities in a small community where one of the investigators lived.

One observation of importance for subsequent population studies of adolescents is that the real risk of sexually transmitted diseases may be easily underestimated in this group. In this study, because most women aged 20 years or over were sexually active, the population distribution (table 4) is similar to that based on sexually active women alone (table 5). Among adolescents, however, the population prevalence of sexually transmitted diseases is influenced by the proportion who have become sexually active at different ages: eg, 4·6% of adolescents under 17 had a trichomonal infection (table 4) but among those sexually experienced (table 5), the prevalence was 11·1%. This is higher than in any other age group, reflecting the fact that incidence of *T vaginalis* peaks in the post-pubertal period following the onset of sexual activity.[18] Comparison between adolescent populations also requires control for extent of sexual activity.

In Nigeria it is a criminal offence for any person to procure or attempt to terminate a pregnancy unless the life of the mother is in danger.[12] Nevertheless, girls who became pregnant were likely to seek an abortion. The scale of abortions—which was certainly under-reported—suggests that many people tacitly help in procurement. For women living in a rural area, the cost of transport and hospital fees for emergency treatment after septic abortion may be prohibitive and women will probably have died as a result of abortion.

Abortion also helps ascent of gonococcal and chlamydial infections to the upper genital tract, which may cause infertility or ectopic pregnancy.[19] There was little evidence that infertility was a problem in K'Dere. Pelvic inflammatory disease was more common in older women and was not closely associated with chlamydial infection. This could indicate a relatively recent rise in sexually transmitted diseases among adolescents since, in older women, pelvic inflammation may result from puerperal sepsis, most women being delivered at home by untrained attendants.

C trachomatis was isolated from 10·5% of sexually active 17–19-year-olds, compared with 1·3% in younger girls. In developed countries, chlamydia is found more frequently in younger women[20] and a recent study in the USA identified age as an independent predictor of chlamydial infection after control for behavioural characteristics.[21] In Africa, some studies in pregnant and high-risk women have found rates of chlamydia that were lower than expected, given the high prevalence of other infections, which may indicate a relative immunity to *C trachomatis* among women exposed at an early age.[22] Studies which include only a small sample of 17–19-year-olds are likely to omit the group most exposed to *C trachomatis* and most at risk of long-term sequelae.

The prevalence of vaginal discharge reported by adolescents is striking (82·4%). Symptomatic yeast infections could have contributed, but 95·9% of chlamydia and gonorrhoea infections were symptomless. Women may confuse normal changes over the menstrual cycle with abnormal discharge, but other factors could be involved about which we have no information, such as anogenital hygiene and infection with bacterial vaginosis. Hormonal factors[23] associated with puberty might also increase susceptibility to yeast infections. Hormonal factors are thought to increase susceptibility of pregnant women, and their exclusion from this study may account for the lower prevalence of candidosis among older women.[13]

In most developing countries, vaginal infections usually go untreated although in future, trichomoniasis may be less neglected because of its presumed association with increased risk of HIV transmission.[25] It is unacceptable that any woman, through want of treatment, should regard vaginal discharge as of minor significance; this is especially true for younger women, since it limits their understanding of normal physiological patterns at the outset of reproductive life. Current recommendations by WHO for prevention and management of sexually transmitted diseases through syndromic diagnosis are based on women's reporting of vaginal discharge. The poor predictive value of algorithms to detect cervical infection based on vaginal discharge[26] partly reflects the high prevalence of vaginal discharges and that cervical infections are frequently symptomless. It is possible that provision of treatment for vaginal infections such as trichomoniasis and candidosis would reduce the pool of women with discharge and increase the likelihood of identifying symptomatic gonorrhoea or chlamydia.

Contraceptive services for adolescents are still opposed in many countries on moral grounds: if adolescent girls were not sexually involved, they would avoid the risk of both sexually transmitted diseases and unwanted pregnancy. In reality, not only is the age of sexual debut decreasing but sexual activity in this age group tends to be sporadic and unplanned, rendering risk less predictable.[27,28] Although legalising abortion services may reduce mortality from complications of unsafe abortion, it would not solve the risk of sexually transmitted diseases. Finding a suitable barrier contraceptive that can be controlled by women is a high priority because there is every indication that the incidence of AIDS in Nigeria will approach that of other African countries within the next few years.[29] Nigerian Primary Health Care Guidelines recommend use of foaming tablets,[30] and according to a WHO report, foaming tablets offer a marketable solution to the contraceptive needs of adolescent girls.[11] Although spermicides kill or inactivate some pathogens, it is uncertain whether they increase or decrease yeast

infections[13] and they may facilitate HIV transmission by causing ulceration.[32] Their acceptability to women is also low.

Special services are justified for adolescents. Recent interest in integrating sexually transmitted disease clinics with family planning and maternal and child health services,[33] so that women are regularly exposed to screening and treatment, may work well for older women. Unmarried adolescents make little use of such facilities in developing countries, and even in some developed countries, the majority of teenage female patients at sexually transmitted disease clinics are not otherwise having medical care, nor practising self-protective measures.[34] Separate services that involve adolescents themselves and are attuned to their values and attitudes are more likely to influence behaviour. In areas where school attendance is high, as in K'Dere, there is much scope for developing school-based services. A sexually transmitted infection or an abortion during adolescence may affect a girl's reproductive potential for the remainder of her life; informative, preventive, and curative health care must begin at an early age before reproductive health has already been compromised.

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Appendix 13 : Sexually transmitted infections among Nigerian adolescent schoolgirls

see Inclusion, reprinted from *Sexually Transmitted Infections*, following pages

Reprinted from SEXUALLY TRANSMITTED INFECTIONS, April 1999, Vol 75, No 2, p 121

Sexually transmitted infections among Nigerian adolescent schoolgirls

Introduction
Information on the prevalence and risk factors for sexually transmitted infections (STIs) among adolescent girls in sub-Saharan Africa is very limited. This report describes the results of a survey of STIs among girls (10–19 years) attending five community secondary schools in Port Harcourt, south east Nigeria.

Methods
Ethical clearance was obtained. A stratified cluster sample of school attending girls was taken from the three senior classes and the number of girls in each year was proportional to the total number of girls in that year over the five schools. Consent was obtained from parents and individual girls. Questions on sexual behaviour were asked by trained peer interviewers. At the clinics (held in school or a nearby health centre) all girls were given a general examination and, if sexually active, samples were taken for a vaginal wet mount for *Trichomonas vaginalis*, culture of *Candida albicans*, and *Neisseria gonorrhoeae*, antigen detection of *Chlamydia trachomatis*, and urinalysis (leucocyte esterase test). Blood was taken to test for treponemal infections. Samples were handled within 4–6 hours of collection as previously described.[1] The sensitivity, specificity, and positive predictive value of vaginal discharge for presence of an STI was calculated, and logistic regression was used to determine the association of social factors and risk of STI.

Results
A total of 1066 unmarried girls were recruited. Their mean age was 16.8 years (SD 1.3 years) and 51.1% (545) were sexually experienced. Prevalence of STIs was as follows: gonorrhoea, 2.1%; chlamydia, 2.1%; syphilis, 1.0%; trichomoniasis, 9.1%. In all, 13.8% had any STI and 11.1% had symptomatic candidosis. Table 1 shows that after adjustment for confounding factors, having a partner ≥25 years (p = 0.00) and having a partner whose occupation was "other" (that is, a miscellaneous category: p=0.03) was associated with being positive for any STI.

Non-sexually experienced girls were almost as likely to report any discharge (43.4%) as the sexually experienced (53.6%). For the latter, the sensitivity of "any" discharge was 87.5% for gonorrhoea, 62.9% for trichomoniasis, and 50.0% for chlamydia. Specificity was 46.3%, 46.6%, and 45.7% respectively. Positive predictive values for all types of discharge were generally poor. As for clinical signs of cervicitis: 6.1% of girls with ectropion, hyperaemia, or purulent discharge were positive for either chlamydia or gonorrhoea. Endocervical polymorph counts were raised in girls both with and without infection (mean count 16.8 and 8.9 respectively). The leucocyte esterase test was positive (any level) for 22.6% of girls with an STI compared with 3.4% of girls with no reproductive tract infection.

Comment
STIs were not detected as frequently as had been expected and would not have been accurately determined on the basis of signs, symptoms, or non-specific tests. Low STI prevalence may have been due to limited sexual involvement and choice of a low risk partner (table 1)—behaviours which vary between populations.[2,3] Neither reported condom use nor previous antibiotic use accounted for the low prevalence. Vaginal infections predominated and, though associated with less serious morbidity than cervical infections, their treatment can form an entry point for advising girls on sexual health issues. Adolescent health programmes should not assume a high STI risk and need to use the clinical management algorithms recommended by the World Health Organisation cautiously, as these tend to overdiagnose cervical infections.[4] Baseline information on STI prevalence is required to tailor them appropriately.[5]

Table 1 Univariate and multivariate analysis of social risk factors for any STI

Characteristic	n/N (%)	Unadjusted odds ratios (CI)* / Adjusted odds ratio (CI)†	p Value
Pregnant			
No	34/251 (13.6)	1.00	
Yes	12/69 (17.4)	1.34 (0.65, 2.76)	0.42
Ever used a condom			
Yes	12/65 (18.5)	1.00	
No	29/246 (11.8)	1.69 (0.81, 3.57)	0.16
Partner has symptoms			
No	42/276 (15.2)	1.00	
Yes	2/8 (25.0)	1.86 (0.36, 9.51)	0.46
Number of partners in past year			
0	1/31 (3.2)	1.00	
1	41/313 (13.1)	4:52 (0.60, 34.06)	0.14
≥2	10/38 (26.3)	10.71 (1.29, 89.19)* 2.13 (0.67, 67.9)†	0.02 0.21
Number of partners in past 3 months			
0	3/46 (6.5)	1.00	
1	43/319 (13.5)	2.23 (0.66, 7.52)	0.20
≥2	6/16 (37.5)	8.60 (1.84, 40.41)* 1.33 (0.21, 8.51)†	0.01 0.76
Age of current partner(s) in the past 3 months			
<19 years	12/100 (12.0)	1.00	
20–24 years	20/171 (11.7)	0.97 (0.45, 2.08)	0.94
≥25 years	16/61 (26.2)	2.61 (1.14, 5.98)* 3.35 (1.57, 7.13)†	0.02 0.00
Main occupation of partner in the past 3 months‡			
Student	14/143 (9.8)	1.00	
Company employee	14/93 (15.1)	1.63 (0.74, 3.61)	0.07
Major business	9/58 (15.5)	1.69 (0.69, 4.16)	0.10
Other	4/13 (30.8)	4.01 (1.12, 15.03)* 4.19 (1.16, 15.20)†	0.03 0.03
Age at first sexual activity			
17–19 years	11/73 (15.1)	1.00	
14–16 years	34/234 (14.5)	0.96 (0.46, 2.00)	0.91
<14 years	2/21 (9.5)	0.59 (0.12, 2.91)	0.52
Number of lifetime partners			
1	34/258 (13.2)	1.00	
2–3	12/67 (17.9)	1.44 (0.70, 2.96)	0.32
≥4	1/3 (33.3)	3.29 (0.29, 37.32)	0.34

*Unadjusted odds ratio.
†Adjusted odds ratios for (1) number of partners in past year ≥2; (2) number of partners in past 3 months ≥2; (3) age of current partner(s) in the past 3 months ≥25 years; (4) main occupation of partner in the past 3 months = other.
‡Specified only for girls reporting one partner.

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