ROUTES OF SPREAD OF HIV INFECTION INTO RURAL COMMUNITIES OF ETHIOPIA: LIMU DISTRICT, SOUTH SHOA REGION

BY

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Routes of HIV Infection into Rural Communities of Ethiopia: Limu Awraja, South Shoa Administrative Region

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ABSTRACT

A multistage, qualitative and descriptive study was carried out in Limu District, central Ethiopia. Routes of spread of HIV infection from urban to rural populations were first identified and then verified. Sexual and non-sexual risk practices of rural farmers were also studied. Qualitatively, through a focus group discussion with urban prostitutes and interviews with community elders, religious leaders, and health professionals potential routes were identified. These were verified by interviewing 20 of soldiers, merchants, and students. Four drivers and 2 former peasant association chairmen were also interviewed. High risk sexual practices were verified in these subgroups. In 45 to 50% of the subgroup subjects extramarital sexual intercourse in the past 3 months was reported. In 25 to 37% sex with urban sex workers was reported. Condom use was found to be very low, varying from 10 to 30%. Knowledge about AIDS and condoms was not satisfactory. Risk perceptions for AIDS were low and changes in risk behaviour were not impressive. Urban sex workers also verified these routes by confirming sexual contact with these rural subgroups of population.

A total of 502 rural farmers were interviewed for high risk behaviours for HIV infection. Extramarital (multipartner) sexual relations in the past 3 months was reported in 13.5% of the farmers. Sex with urban sex workers as the last extramarital sex in the past 3 months was reported in 6.7% of the males. Condom use was very low. Past history for STD's was assessed. Gonorrhoea was

the most commonly reported illness at 10.2%. Non-sexual risk practices were also studied. In the study population, 23.9% of the males had received an injection in the past 3 months. Of these, 27% were received in the villages. A history of tattooing, blood letting, ear piercing, and scarification were reported in 2 to 6%. A total of 58.6% of the rural farmers have heard about AIDS. Out of these 94.5% knew at least one correct mode of transmission of AIDS. Twenty eight percent of the population believe that they can get AIDS and 30% have changed behaviour. In this study there was no association beteween knowledge and high risk sexual or non-sexual practices.

This study revealed that certain sub-groups of rural population particularly the former military, merchants and students have the potential to spread HIV infection into rural communities and a high proportion of rural farmers exhibit high risk practices, hence immediate intervention is recommended.

INTRODUCTION

The Acquired Immunodeficiency Syndrome (AIDS) was first diagnosed and recognized as an illness in 1981 among male homosexuals in the United States(1). Two years later the causative agent a retro-virus named Human Immunodeficiency Virus(HIV) was isolated. It has now become known that the virus is transmitted through 3 distinct means: sexual intercourse, contamination from infected blood, and vertical transmission from mother to child(2).

Three distinct patterns of HIV/AIDS occurrence have been identified(3) In Pattern 1 countries, which are mainly the Americas and Europe, the predominant mode of transmission occurs through contact with contaminated blood, homosexuality and intravenous drug abuse(2). In Pattern II the transmission occurs mainly through heterosexual contact between either of the infected partners. In this pattern the male to female ratio is usually equal. This is a typical pattern of spread in Africa(4). In Pattern III countries the transmission occurs equally among homo and heterosexual contacts and i.v. drug users.

In Africa the syndrome manifests itself with chronic debilitation and wasting due to opportunistic secondary fungal, bacterial and protozoal infections. No cure or protective vaccine has been found. Hence, modification of personal and community behaviours is considered to be the only potentially effective means of preventing the acquisition and spread of the infection(5).

at high risk due to mobility(9).

Considering the situation in Ethiopian or other African rural populations the work is scanty. Only a few epidemiologic studies have been conducted in Africa or other developing countries, these being in Central and East Africa (4,7,10,11,12,13). Few of these behaviour studies examine rural populations. Hence, no attempt has been made to trace the routes of spread of HIV infection from areas of high prevalence and incidence, mainly the densely populated urban areas to the majority of the rural population. In Ethiopia the few risk behaviour studies for HIV infection published (14,15,16) have been confined to urban populations. High risk sexual and non-sexual practices in rural populations as well as the routes of spread into these communities have not been studied.

Considering the rising incidence and prevalence of HIV infection among urban populations and imminent potential for spread into the rural communities, the routes of spread of HIV/AIDS are relevant to study. Additionally, since no studies have been carried out to verify routes of spread of HIV infection into rural communities, this study is expected to contribute to HIV - infection preventive measures.

This study was carried out in urban and rural communities of Limu Awraja(district), South-Shoa Administrative Region, central Ethiopia. The capital of the awraja, Hosana, is located 230 kms south of Addis Ababa. This district is one of the eight districts of the former and larger Kambata Hadiya Awraja. The majority of the population is of Hadiya ethnicity. The awraja has 74 rural

peasant associations, six rural towns, and one larger capital town, Hosana. The total population is estimated to be 280,000 with 90% being rural. The capital town is a busy business centre, with ample transportation and communication facilities connecting it to neighbouring regions. In the awraja there is a 150 bed hospital and seven health stations. In this hospital found in Hosana there is a functional HIV screening laboratory staffed by a trained laboratory technician.There are also HIV - CHECK kits for HIV testing. This district was selected for the study because it was the assignment area of the principal investigator as the District health manager.

LITERATURE REVIEW

OCCURRENCE AND DISTRIBUTION OF HIV/AIDS

The pandemic of AIDS has become the current major public health problem in the developed and developing world(10). It's occurrence is increasing in all parts of the developing world, including East(17) and Central Africa(6). Because of its impact on health and resistance to modern technology, AIDS has attracted the attention of the entire world community. Many studies on its etiology, epidemiology, clinical presentation, transmission, and means of control have and are being carried out.

The incidence and prevalence of HIV infection globally is increasing at an alarming rate. As of January 1, 1988, 129 countries had reported at least one AIDS case, for a total of 73,747 cases, to the World Health organization (18), out of which all Americas reported 75% of cases and Africa and Europe 12% each. By December 1989, the number of cases reported worldwide had increased to 203,599 and to 298,914 by October 1990. This is a worldwide increment of 46.8% and for Africa it is an increase of 97.8% (19,20). By October 1991, the total number of cases reported to the WHO had increased to 418,404, out of which Africa contributed 120,547 (28.8%) of the cases (21).

AIDS has already become a major public health problem in many Central and East African urban populations. In Congo, Rwanda, Tanzania, Uganda, Zaire and Zambia 5 to 20% of the sexually active population is already infected with HIV (22). Unfortunately,

AIDS/HIV was initially thought to be mostly an urban disease and the rural populations were neglected (7). The earliest presence of HIV infection in Africa is reported from testing stored blood from Zaire dating back to 1959(10). In 1987, in a study in a remote rural area of Rwanda, 2 out of 147(1.4%) adults from strictly rural areas, 8.5% from an adjacent market place, and 30% of STD clinic attenders from the same area were HIV sero-positive (11). Higher rates of 12.6% were reported among rural adults from Eastern Zaire in 1985 (11). In Uganda, seroepidemiologic-studies over 2 years time (1985 - 1987) found a sero-prevalence ranging from 1.4 to 12.5%, compared to the urban figure of 10.6 - 24.1% in healthy individuals. In certain high risk areas figures were as high as 67.7% (12). Further documentation from rural areas comes from Burundi, where 4.3% of adults were found positive for HIV (12). Rapid spread of HIV into rural settings was reported in Central Africa between 1983 and 1986, where the increment of seropositivity went from 0.9% in 1983 to 13.2% in 1986 among healthy individuals, a dramatic rise. Additionally, in suspected AIDS and tuberculosis patients the sero-prevalence was 83.3 and 10% respectively (23). In August of 1987, a KAP study in two semi-rural communities of Uganda were carried out. In this study 10.8% had antibodies to HIV-1 by ELISA (13). During the 2nd International conference on AIDS in Paris, 1986, studies were reported indicating rural HIV seropositivity, such as that in western Tanzania of 4.9% (7). Community samples in rural Uganda found a 12% prevalence (7). Another study in the same country

revealed a prevalence of 7 - 30% (21). A serologic study in rural Zimbabwe found a prevalence of 3.2% (7). According to Goodgame's (1988) review, rural HIV seropositivity rates of 7 - 12% and urban rates of 8 - 30% have been documented. He states that all rural and urban foci are commonly infected. This in turn indicates that HIV is becoming endemic in many rural areas like that of the urban population(8). The above mentioned literature is satisfactory evidence to verify the presence and rapid spread of the infection into rural communities of the developing world. In 1987, a population based sero-epidemiologic survey was carried out in Tanzania, in which sero-prevalence was compared in urban and rural populations. Among adults, a higher prevalence in urban zones (24.1%) than the rural zones (0.4 to 10%) was found. HIV-1 prevalence was also found higher in rural areas closer to the towns. In the same study, risk factors for HIV infection in rural population were sexual experience, blood transfusions, injections, sexual partner change and travelling out of the region(24).

Perinatal transmission has also been shown to be an emerging trend and serious problem in Africa where in Kenya and Zaire, 17 - 45% of infants born to seropositive mothers were infected in utero (4). Together with the heterosexual transmission of HIV in Africa where male:female infection rates are similar, potentially new modes are appearing through research, such as the perinatal transmission from mother to infants(25).

HIV/AIDS has already become evident among urban populations and the rates in the general population of the sub-Saharan Africa

vary between 0.5 - 13%. Among high risk groups, mainly female prostitutes, rates between 8 - 88% have been reported(5). Literature also confirms the rapid spread of the infection where in a localized setting among pregnant women 0.25 - 8% rise in prevalence is noted, with a key contributing factor being the high spread from prostitutes to highly promiscuous heterosexuals and in return to the general population (4). In the same literature, it's revealed that in addition to HIV-1, HIV-2 in West Africa also infects from 0.3% of pregnant women to 14% of female prostitutes, and 0.1 to 6.3% in Guinea and Cape Verde. Some studies suggest the likelihood of acquiring of HIV among rural subjects through sexual contacts in cities (11).

The existence of AIDS in Ethiopia has been recognized since 1986 (26). Since then, the number of AIDS cases has increased at an alarming rate (18 - 21). By 1994, approximately 29,000 new AIDS cases are expected in Ethiopia (26).

HIGH RISK BEHAVIOURS FOR HIV

For most countries in Africa the epidemiologic pattern 2 applies, where transmission is mainly by heterosexual contact and contamination by infected blood (4,27), hence, the male to female ratio of infection is 1:1. In Ethiopia the main mode of transmission is via heterosexual contact between male and female partners. The use of unsterilized needles and transfusion of infected blood into healthy recipients may contribute, but is not well documented(14).

Many studies in the developed (28), as well as developing world, have attempted to specify certain practices which put one at higher risk of acquiring and spreading the infection. Mann (1991) concludes that for the purpose of HIV transmission a sufficient understanding of behaviour has not yet been developed (29). Studies in Africa and Haitian heterosexuals have led to the conclusion that sex with a prostitute, being a prostitute, being a sex partner of an infected person and having multiple sex partners place one at increased risk for HIV infection (4,11-13,30). Additionally, STD's, particularly those with genital ulcerations, such as Chancroid, are also associated with higher HIV positivity (4,30,31). It's also evident that the high prevalence of STD's is an important indicator of the potential extent of HIV transmission (9).

Gillies and Carballo(1990), based upon a review of adult perception of risk and risk behaviours for HIV/AIDS reached the conclusion that some people by virtue of their risk perception or risk related behaviours can be identified as at particularly high risk for HIV infection. They include, a) men and women attending STD clinics, b) intravenous drug users, c) commercial sex workers, d) men or women with an HIV positive partners or partners with AIDS or partners who are intra venous drug users, e) homosexuals, f) male prisoners, g) sexually active women attending family planning clinics, and h) travellers. Additionally, young military personnel and lorry drivers were also at elevated risk for HIV infection (8). The above conclusions are also observed elsewhere

historically, documented to have facilitated the transmission of STD's and may act also similarly for HIV(9). Re-marriages of widows and divorced women multiplies ones number of sexual partners over the life time, hence, placing oneself at higher risk of acquiring HIV infection(27).

In Ethiopia the distribution of HIV infection in urban and particularly, rural settings is not well established. Few sero-epidemiologic studies in major towns have been carried out among the general population. Those studies which have been done focus on specific subgroups in society, mainly prostitutes. In Ethiopia, a comprehensive nation-wide surveillance has been implemented in urban areas, for specific population subgroups by the Department of AIDS control, Ministry of Health. In 1988, 6234 female sex workers practising multipartner sexual contacts from 23 urban areas were tested for HIV-1. Prevalence rates ranging from 1.3% in Massawa to 38.1% in Dessie were found, with a mean of 17%(37,38). Since then surveys have been conducted yearly and has led to the conclusion that the epidemic is progressing alarmingly(37,38). Another sero-epidemiological survey in 1989 in Addis Ababa for HIV -1 infection among 4 groups of female sex workers showed prevalence ranging form 9.1% to 43.8%(39). In 1988, prevalence among truck drivers was found to be 13%. These groups had more sexual partners particularly prostitutes(40). Mehret (41) reviews the situation of HIV/AIDS progression in Ethiopia and concludes that the HIV epidemic is rapidely progressing among the urban population in Ethiopia. Other studies have also shown prevalence ranging between

15 - 60% among prostitutes and 6% among prisoners in a prison in Diredawa (15,42). This situation could become even worse if the AIDS epidemic spreads significantly from urban areas, where it is now focused and which contain only 5 - 10% of the population, to the rural areas where most people live(22). Few risk behaviour assessment studies have been carried out in towns and among selected population groups as well as the general male population (14,16,43). To date no attempt has been made to identify and verify the route of spread of HIV infection into rural communities of Ethiopia. As seen from the distribution of HIV in Africa, its evident that the spread is taking place at a very alarming speed, and the same may also be happening in Ethiopia. Though, patterns of spread, and high risk occupations for HIV are known for urban and semi-urban areas, very few researchers stated that the routes of spread are similar in both urban and rural areas (17). Thus it needs to be studied in a detail. Hence, this study will attempt to fill this gap in knowledge about the potential routes of spread of HIV infection into rural communities of Ethiopia, and to recommend appropriate control measures.

The potential routes of spread from urban to rural areas, as seen in the above literature review are not yet studied in developing countries, including Ethiopia. In order to generate ideas on these potential routes, qualitative research methods are preferred(44,45). Qualitative research has the following applications:

a. early exploration and idea generation and direct experience of target population,

b. pilot for quantitative study as exploration and hypothesis development,

c. identify information needs of potential target segments,

d. problem identification and definition,

e. obtain information from small, "elite" samples.

Two major forms of qualitative research exist, these are one to one in depth interviews and focus groups sessions. As part of the identification phase, focus group session with urban prostitutes is appropriate in order to generate ideas on nature and character of their clients particularly the rural ones and high risk groups in the population. Hence, potential routes can be identified.

Table 1. Summery of literature on occurrence of HIV in Africa and Ethiopia.

Country	Year	Population	Prevalence
Central Afr(23)	1983-86	healthy adults	0.9-13.2%
Zaire(11)	1985	rural healthy adults	12.6%
Uganda(12)	1985-87	rural healthy adults	1.4-12.5%
		urban healthy adults	10.6-24.1%
		high risk groups	67.7%
Tanzania (7)	1986	rural health adults	4.9%
Burundi (12)	1987	health adults	4.3%
Rwanda (11)	1987	rural healthy adults	1.4%
		adults in market	8.5%
		STD clninic	30.0%
Uganda(13)	1987	rural healthy adults	10.8%
Congo(22) Rwanda Tanzania Uganda Zaire Zambia	1988	sexually active	5.0-20.0%
Central Afr(23)	1988	suspected AIDS pts	83.3%
		suspected Tbc pts	10%
Uganda(8)	1988	rural healthy adults	7-30%
		rural healthy adults	7-12%
		urban healthy adults	8-30%
Uganda(7)	1991	rural healthy adults	12%
Zimbabwe		rural healthy adults	3.2%
Ethiopia(42)	1987	prisoners	6%
" (37,38)	1988	prostitutes	1.3-38.1%
" (40)	1988	truck drivers	13%
" (39)	1989	prostitutes	9.1-43.8%
" (15)	1991	prostitutes	15 - 60%

OBJECTIVES

GENERAL

The general objective of this study is to identify and verify potential routes of spread of HIV infection from urban into rural Ethiopian communities.

SPECIFIC

A. Through a focus group discussion, key informant interviews and personal interview to generate ideas on population movements and to determine which subgroups in the population move between urban and rural sites and are sexually active in both.

B. Verify potential routes of spread of HIV infection through sexual contact histories of the most mobile and high risk sub-groups of population.

C. Document the behaviours /sexual and non-sexual/ placing rural farmers at elevated risk for acquiring HIV infection.

D. Attempt to recommend future research work as well as some control measures against the spread of HIV infection into the rural Ethiopian population.

SUBJECTS AND METHODS

STUDY DESIGN

This is a multi-staged qualitative and descriptive study with two components (See Figure 1).

Component One: a 2 phased set of interviews to identify and then verify high risk groups for the spread of HIV infection from urban to rural populations.

Phase 1. Identification Phase: During this stage informal community leaders, and religious leaders were interviewed about rural - urban population movements of specific population sub-groups, together with their possible sexual and non sexual risk practices which predispose one to the acquisition and spread of HIV infection as key informant interviews. Additionally personal discussions were conducted with influential/elderly people and physicians, at the KHH. A focus group discussion with 8 commercial sex workers was done in order to generate further ideas on potential high risk groups in the population.

Phase 2. Verification Phase: In this phase the sexual and non-sexual practices of the potentially high risk sub-groups were verfied through interview, and the proposed hypothesis for routes of spread of HIV infection verified. Additionally urban commercial sex workers coming to the Hosana hospital requesting condoms were asked to verify their clients and particularly, the proportion that are rural.

Component two

Rural farmers, representative of the general rural population, were interviewed. High risk behaviours for spread of HIV were documented and then linked with those of sub-groups identified in the first component of the study.

POPULATION

Component one

Phase 1. - Identification Phase

Source and Study Population : Five community leaders one from each of the selected study farmers associations, six religious leaders(by convenience) - 3 from Hosana town - catholic, protestant and orthodox churches and 3 from rural areas all orthodox priests, four prominent physicians at Kambata Hadiya hospital(KHH). Eight commercial sex workers participated in the focus group discussion.

Phase 2. - Verification phase

From each high risk sub groups identified in phase 1, i.e., rural merchants(19), rural students(20), rural residing returner former soldiers(20), 4 truck drivers and 2 former peasant associations chairpersons were chosen and interviewed. Twenty one urban female commercial sex workers from among those requesting condoms from Hosana hospsital were additionally, interviewed.

Component two

Source population : All rural male farmers residing in the 10 randomly selected peasant associations, aged 15 - 49 years comprised the source population.

Study population : the study population was drawn systematically from the above source population within each selected peasant association. The following criteria were followed for enrolment:

i. Inclusion criteria :

a. Male farmer aged 15 to 49 years, who resides in one of the 10 P.A.'s.

b. A permanent resident of the village,defined as living in the area for at least 1 year.

c. Subject consents to participate in the study.

ii. Exclusion criteria :

a. Those not able to speak either Amharic, Kambatigna or Hadiyigna.

b. Those who are mentally or physically ill.

In households with more than one eligible, only one was randomly assigned for interview and then informed consent was obtained (see Appendix B).

Sample size calculation

The prevalence of high risk sexual behaviours among the male farmers of the study is unknown. Taking an estimate of 30% prevalence of high risk behaviours among the general farmers population and wanting to detect a minimal difference of 15%(d=0.15) in the rates of high risk behaviours, with a 95% confidence of certainty (alpha = 0.05), and power of 80%, the estimated sample size was calculated using the StatCalc programme of EPI INFO computer software statistical package and the total

sample size required was 460. Adding 10% contingency the overall sample size required will be 506 rural adult male farmers.

Ethical considerations and consent

Ethical problems were envisaged during proposal phase & hence prior to enrolment into the study interviewers were trained well to minimize such problems. Additionally informed consent was obtained from all participants (see Appendix B).

MEASUREMENTS

Four different sets of questionnaires (all appended), were used to interview different population subgroups. These were:

a. For component one, phase 1 of the study - questionnaire (Q# 1) for the identification of potential routes was used which included questions such as : presence of prostitutes in rural areas, certain multi-partner and extra-marital sexual relations in rural communities, polygamy and population mobility. Also any special population sub-groups which may be potential routes and finally non-sexual risk practices for spread such as traditional cutting, piercing and injecting practices were discussed.

b. For component one phase 2 of the study - a structured questionnaire(Q #2) assessed high risk sexual behaviours among potentially high risk sub groups identified in the first phase. In this phase an attempt was made to trace extramarital, multiple partner sexual contacts in terms

of place, person,time and condom use. Additionally, some knowledge on AIDS and risk perception was also questioned. During this phase, urban prostitutes were also questioned (Q #4) on their clients particularly the rural ones.

c. for component 2 of the study - using a structured questionnaire rural farmers were interviewed for their socio-demographic characters, sexual practices putting one at risk of acquiring HIV, non-sexual risk practices and lastly knowledge and risk perception about AIDS (Q #3).

All these questionnaires were prepared in English and then translated to Amharic and Hadiyigna, by six different individuals who speak amharic fluently and are of hadiya nationality. No major differences were found between the six translations. To prevent information bias by contamination of responses to questions on sexual practice, the specific behaviour questions were asked first followed by knowledge and risk perception items. In order to facilitate accurate and honest response - especially on sexual practice items, each interviewer took adequate time to build up the necessary confidence and trust of the interviewee.

All the structured questionnaires were pretested on 10 urban residents of Hosana and other 10 rural people for comprehensiveness, clarity, acceptability, accuracy of translation and appropriateness. Further modifications were made and estimates of time required for each interview determined. Through this pre-

testing some major problems on the style of interview was revealed and further training to resolve the problem was carried out. Self reporting answer sheets were planned to fill responses but during the pre-testing it was very difficult to apply it to the rural people and hence the investigator decided not to use them in the actual interview period.

Prior to the administration of the questionnaires informed consent (appended) was obtained from each interviewee.

In order to achieve the objectives of the study, the following variables were generally applied: the overall outcome variable is the high risk sexual and non-sexual behaviours for HIV spread in high risk sub-groups and the general rural population. The determinant variables are the socio-demographic variables.

MANAGEMENT

This study involves questioning the respondents very private life matters which requires an honest and accurate response. Assuming that the population is acquainted with being questioned on such sensitive life experiences by health professionals, six health assistants and nurses were recruited as interviewers from KHH staff. The following criteria were used to recruit the above six interviewers : volunteers, males, ages between 30 - 45 years, speak Amharic, Kambatigna and Hadiyigna. Interviewers were judged to be cooperative, friendly, sociable and able to communicate easily. One nurse was hired as a project coordinator. He supervised and facilitated the activities of the interviewers.

The above recruited interviewers and the project coordinator

were trained for one week by the principal investigator on the process of data collection. This included lectures, demonstrations, discussions and role playing, where each interviewer acted both as interviewer and interviewee. The interviewers were given a detailed discussion of each question, the methods of questioning, how to record responses, and the prepared written consent. Additionally, the ethical considerations they must take during the interviews such as full confidentiality of obtained information, politeness and to conduct interviews at a chosen place of the respondents were emphasized during training.

The project coordinator was also trained on how to check on completeness of the questionnaires before accepting them from the interviewers. The interviewers as well as the coordinator were told to take the highest possible precaution through out the study to record responses honestly and completely.

The data collection days were jointly decided by the principal investigator, coordinator and the interviewers. The coordinator travelled together with the interviewers to the study sites, supervised the actual interviews and checked for completeness and clarity of the filled questionnaire, then handed them over to the principal investigator.

On the interview days the respective questionnaires were handed over to the coordinator by the investigator and then in turn the coordinator distributed the questionnaires to each interviewer. The principal investigator copied the responses on a separate answer sheets designed for data entry in to the computer.

Component one - phase one - interviews were totally carried out by the principal investigator in Hosana town as well as the rural sites.

- phase two - interviews were carried out as follows :

a. Rural merchants were interviewed in Hosana town on Saturdays i.e., weekly market days - 19 merchants were interviewed by the trained interviewers, at the market place itself. To ensure privacy the selected merchants were interviewed in near by drink houses, one by one.

b. Rural residing soldiers (20) were interviewed in the 10 selected peasant associations - whenever found during interviewing farmers.

c. Rural residing high school students - twenty rural 11 - 12 graders from Wachamo high school were selected randomly from school rosters. The interviews took place in school compound where secrecy could be maintained, after obtaining the consent.

d. Drivers, former peasant association chairmen, totally 6 in number were interviewed during different time and places in Hosana town. Same procedure for enrolment and interview was followed.

e. Twenty one urban sex workers were interviewed by the MCH coordinator - those coming to KHH MCH clinic demanding condoms. All were volunteers.

Component two - Rural farmers

In the ten randomly selected peasant associations, one PA was covered at a time. Each interviewer interviewed 8 to 9 rural farmers in each PA. One eligible was obtained from a household, which was chosen systematically after assigning the 1st one randomly and then taking every 4th house. This worked well in properly villagized PA's. In non-villagized PA's house selection was done approximately. In each household eligibility was based on the inclusion and exclusion criteria mentioned above.

Twice weekly meetings were held between the principal investigator , project coordinator and interviewers to discuss work progress, problem encountered and to seek timely solutions.

The period of data collection took place from December 1st, 1991 till January 18th, 1992.

Due to the nature of the study i.e., anonymity and confidentiality, the reliability of the collected data couldn't be double checked by making revisits, in order to fulfil the promise given to the respondents on privacy, confidentiality and anonymity of obtained information.

Data Analysis

The EPI - Info version 5 soft ware program was used to analyze the data collected in this study. The raw data was entered into the computer using the data entry system of the EPI - Info program. Then data was cleaned and all the necessary corrections on data entry were done by using the frequency distribution print out.

Frequencies were obtained for each variables. The items were grouped as appropriate total scores. (For Q #3 - Sexual Practice Score(SPS),Knowledge Score(KS), and Non-sexual Practice Score(NSPS) were calculated, see Appendix C). Frequencies of these scores were obtained for the different subgroups of population studied. These scores were cross tabulated with the basic socio-demographic variables to determine if any association existed. ANOVA, regression, correlation and 95% confidence intervals were calculated wherever appropriate.

have extramarital sexual affairs when in town. They did point out that bachelor merchants and rural students may have promiscous sexual relations both in their residential areas as well in the town. Community leaders stressed that most of the population is religious and promuscity or high risk sexual practices are rare. When asked about the behaviour of returned former soldiers, they mentioned forced intercourse with farmers' wives and daughters. They also frequently had sex with prostitutes in towns. At present most ex-soldiers don't want to reveal themselves in public and their activities, especially private ones, are not well known. Among non-sexual risk practices, injections were reported to be given in the villages by unlicensed drug vendors. These were mainly given by 'CHAs' who were trained for 3 months at the hospital. Other practices, such as scarification, ear piercing, dental extraction, uvulectomy, male and female circumcision and blood letting are not commonly practiced in adulthood.

Religious leaders

The rural priests are of the opinion that promiscuity and extramarital sex is rare in the villages. Few bachelors may engage in such "evil acts", otherwise most people are said to be christians with a strong dedication to their religious teachings, which forbids such activities. They felt potential high risk groups may be those who are moving for occupational reasons to the towns. These are merchants and students.

Focus group discussions with urban sex workers

These revealed that urban sex workers have rural clients, though not very commonly. They constituted the minority of their clients. Most of these are merchants coming on market days for trade. Among their clients a few reported students(rural), former peasant association executives. Soldiers were the most common rural residing clients. Rural residing drivers were mentioned by a few of them during the discussion.

Personal communications with health care workers at the KHH

These comprised physicians and lab technicians working in the AIDS laboratory at the KHH. The opinion was that the mobile people from rural areas to the town are mainly merchants, who sell farm products, butter, honey, coffee, grain and Khat. Additionally, there are many students coming from rural areas into Hosana town for schooling. Their observation as medical practitioners in the areas for more than 8 - 10 years and currently is that few AIDS cases and HIV +ve people are reporting from rural areas. Recently a rural residing driver visited the medical OPD with signs and symptoms of AIDS and he was positive for HIV serologically. The same individual is a resident of one of the sites of this study. Occurance of STD's was also inquired about. It is believed that nowadays STD's are seen almost equally among the urban and rural patients.

VERIFICATION OF ROUTES OF SPREAD

During this phase potential routes of spread of HIV infection into rural communities by high risk sub-groups of the population identified in phase 1 were verified. The potentially high risk subgroups identified were rural ex-soldiers, rural merchants,rural residing students studying and living in town, rural residing truck owner and/or drivers, former peasant association chairmen, urban swx workers. These subgroups were interviewed in line with a prepared questionnaire (Q #2, Appended). 20 each of former soldiers, rural students, 19 rural merchants and 21 urban sex workers were interviewed. Additionally 4 rural truck drivers and 2 former peasant association chairmen were interviewed. These people were selected for the study after identifying their presence by asking informants in the respective villages. The results of the interviews are summerized in Tables 2-5.

The socio-demographic characterstics of the potential routes of spread is shown on Table 2. Mean ages of soldiers, students, merchants and other routes was 30.7 ± 6.3, 24 ± 3.4, 31.3 ± 6.9 and 36.2 ± 7.3 years respectively. Most of these subgroups are literate. The majority had some schooling. Those who were currently married ranged from 25 - 89.5% of the different subgroups. The majority of the studied groups were protestants and of Hadiya ethnicity.

Table 3 summarizes the high risk sexual behaviours for spread in the past 3 months preceding the study. Majority of the study group had extramarital(multipartner sexual intecourse). Among those who had sex(extramarital/ or regular partner) 25 - 37% had

sex with sex workers in town. The mean number of sexual contacts (per woman), ranged from 3.7±1.5 to 4.9±1.2 per person. 20 to 40% of the last extramarital sexual episode was in the town. Condoms were worn in 10 to 30% of the high risk groups.

Concerning their attitudes towards wanting or expecting to have sex whenever in town 90% of the soldiers, 40% of the students and 32% of the merchants responded affirmatively.
42% (in merchants) to 94% of the soldiers expected to have or did have sex whenever in town.

Table 4 shows the knowledge about AIDS in potential routes. 70 to 100% have heard about AIDS, 42 to 80% of them know the modes of transmission, 83 to 100% knew that AIDS kills. The majority knew health risks of sex with prostitutes and 47 to 100% knew what a condom is.

Table 5 shows the risk perceptions of AIDS. 30 to 63% believe that they can get AIDS, 35 to 83% are afraid of AIDS and 10 to 47% have changed their sexual behaviour.

Table 2. Socio-demographic characterstics of the population subgroups interviwed

Variable AGE(YRS)	Soldiers n = 20	students n = 20	Merchants n = 19	Others n = 6
15 - 19	-	1 (5%)	-	-
20 - 24	2(10%)	9(45%)	2(11%)	-
25 - 29	8(40%)	9(45%)	7(37%)	1(17%)
30 - 34	5(25%)	1(5%)	4(21%)	2(33%)
35 - 39	2(10%)	-	3(16%)	1(17%)
40 - 44	2(10%)	-	2(11%)	1(17%)
45 - 49	1(5%)	-	1(5%)	1(17%)
READ/WRITE				
neither	5(25%)	-	1(5%)	-
only read	1(5%)	-	3(16%)	-
both	14(70%)	20(100%)	15(79%)	6(100%)
MARITAL STATE				
single	9(45%)	14(70%)	2(10%)	1(17%)
married	7(35%)	5(25%)	17(90%)	5(83%)
divorced	3(15%)	1(5%)	-	-
widowed	1(5%)	-	-	-
EDUCATION				
≤6 grades	10(50%)	-	7(35%)	3(50%)
>6 "	1(5%)	20(100%)	8(40%)	2(40%)
RELIGION				
Protestant	7(35%)	10(50%)	12(63%)	1(17%)
Catholic	-	1(5%)	-	-
Orthodox	5(25%)	7(35%)	5(26%)	1(17%)
Moslem	4(20%)	2(10%)	2(11%)	4(67%)
no relig.	4(20%)	-	-	-
ETHNICITY				
Kambata	3(15%)	1(5%)	5(26%)	-
Hadiya	12(60%)	15(75%)	14(74%)	4(67%)
Gurage	4(20%)	3(15%)	-	1(17%)
Oromo	1(5%)	-	-	-
Amhara	-	1(5%)	-	-

Table 3. High risk sexual practices in past 3 months

practice	soldiers n=20	students n=20	merchants n=19	others*** n=6
# contact *				
0	11(55%)	9(45%)	10(53%)	3(50%)
1	7(35%)	6(30%)	6(46%)	2(33%)
2	2(10%)	5(25%)	3(23%)	-
3	-	-	-	1(17%)
last contact prostitute				
yes	5(25%)	5(25%)	7(37%)	2(33%)
no	15(75%)	15(75%)	12(63%)	4(67%)
place, in town	4(20%)	8(40%)	6(32%)	2(35%)
last contact condom used	2(10%)	6(30%)	-	1(17%)
Reported STD**				
none	9(45%)	15(75%)	17(90%)	4(67%)
Gonorrhoea	11(55%)	5(25%)	2(11%)	2(33%)
Syphillis	4(20%)	3(15%)	2(11%)	1(17%)
Chancroid	3(15%)	2(10%)	2(11%)	1(17%)
LGV	5(25%)	1(5%)	1 (5%)	-

* in the past 3 months, number of extramarital partners
** in life time
*** 4 truck drivers and 2 former peasant associations chairpersons

Table 4. Knowledge about AIDS

Item	soldiers n=20	students n=20	merchants n=19	others n=6
Knows what AIDS is	14(70%)	20(100%)	13(68%)	5(83%)
Knows modes transm. *	14(70%)	8(42%)	12(80%)	3(60%)
Knows AIDS kills	12(85.7%)	20(100%)	14(93%)	5(83%)
Knows risks sex prostit	14(70%)	18(90%)	17(90%)	1(17%)
Knows condom	16(80.0%)	20(100%)	9(47%)	4(67%)

* knows at least one correct mode of transmission

Table 5. Risk perceptions of AIDS

	soldiers n=20	students n=20	merchants n=19	others n=6
Can GET AIDS	6(30%)	12(60%)	12(63%)	2(33%)
Afraid of AIDS	7(35%)	7(35%)	9(47%)	5(83%)
Changed behaviour	2(10%)	2(10%)	9(47%)	2(33%)

During the verification phase urban sex workers were interviewed to determine who are thier customers and to verify whether the previously identified subgroups in the rural population have contact with them. It was planned to interview rural sex workers, but none were identified in the study sites. Liquior sellers were identified in only a few villages, but these didn't engage in any form of commercial sex. This was also confirmed by the community and religious leaders in the respective study sites. The results of the interview with the urban sex workers is as follows; 21 sex workers who had come to KHH MCH clinic demanding condoms were interviewed.

The mean age of the sex workers was 21.3±6 years with the range of 16 to 35 years. The age distribution of the sex workers was as such that the majority is in ages below 24 years of age.

The mean duration of commercial sex work was calculated to be 1.9 years with SD of 1.4 and range of 0.5 - 6.0 years. Nine(42.9%) of the sex workers had previously practised commercial sex elswhere.The number of clients reported per week ranged from 1to4.

Sex workers were asked which of the following subgroups of the population visited them in the week prior to this interview. Seven of the sex workers reported rural clients, eithers merchants, drivers, soldiers or students.

Finally, the sex workers were asked whether their rural clients wore condoms during sex with them. None was answered by 4(19%), some by 9(42.9%), most by 4(19%) and all clients by 4(19%) commercial sex workers.

RURAL FARMERS

Socio Demographic Charateratics

The socio-demographic characterstics of the interviewed farmers is shown in Table 6. It can be seen that the majority of the rural farmers selected were between 35 - 49 years of age. The mean age was 35.9±8.5 years. Most are subsistence farmers. Of the total study population 65.3% had some formal education. The majority of the males interviewed are currently married,but only a small proportion, 6.2%, have more than one wife. The overwhelming majority of the population is of Hadiya nationality. Protestant religion ranks first at 42%, followed by Moslems, 31%.

Sexual Practices

The high risk sexual practices are summerized in Table 7. Out of the total population, 367(73.1%) reported to have had sex in the last 3 months, of which 68(13.5%) had sex with women other than their wife or a regular partner. In forty seven (69%) this was limited to one, 14(20.6%) with two, and 7(10.3%) with three women. When asked about with whom they had sex, 34(50%) reported with sex workers, 16(23.5%) with another farmer's wife, and

Table 6. Socio-demographic characterstic of rural farmers

Characterstic	N = 502	%
Age (years)		
15 - 19	16	3.2
20 - 24	32	6.4
25 - 29	74	14.7
30 - 34	68	13.5
35 - 39	116	23.1
40 - 44	93	18.5
45 - 49	103	20.5
Education		
none	174	34.7
Grades 1 - 6	300	59.7
Grades 7 - 12	28	5.6
Occupation		
Subsistence	264	52.6
Sell in vill.	121	24.1
Sell in town	117	23.3
Marital status		
Single	51	10.2
Married	422	84.1
Divorced	16	3.2
Widowed	13	2.6
# of wives if married		
1	396	93.8
2	25	5.9
3	1	0.2
Ethnicity		
Kambata	29	5.8
Hadiya	385	76.7
Gurage	76	15.1
Others	12	2.4
Religion		
Protestant	210	41.8
Moslem	153	30.5
Orthodox	131	26.1
Others	8	1.6

Table 7. High risk sexual practices of 502 rural males

VARIABLE		# (%)
# Of sex contacts *	0	434 (86.5)
	1	47 (9.4)
	2	14 (2.8)
	3	7 (1.4)
Last Sex with **		
Prostitute		34 (6.8)
Others farmers' wife		16 (3.2)
Girlfriend		11 (2.2)
Others		7 (1.4)
Place of last sex **		
Town		37 (7.4)
Village - same		24 (4.2)
Village - other		3 (0.6)
Condom used during last sex**		4 (6.3)
History of STD'S		
None		451 (89.8)
Gonorrhoea		51 (10.2)
Syphillis		16 (3.2)
Chancroid		5 (1.0)
LGV		3 (0.3)

* Number of extramarital sexual partners in the past three monthes

** the most recent extramarital sex (for married), or the most recent sex with any women for those unmarried ones, in the past 3 months

5(7.4%) with a girlfriend. Sixty-four males responded to the question about the place where they had had their last extramarital sex; the majority 37(57.8%), responded in town. Of the same 64 respondants only 4(6.3%) reported to have had worn condoms during the last extramarital sexual contact.

Of the 458(91.2%) who reported to be going to the town frequently, 45(9.8%) expected to have to sex in town and among these men, 30 prefered to have sex with prostitutes.

Non-sexual practices

Injections had been received by 120(23.9%) of the farmers at some time in the past 3 months, of which 87(72.5%) were given in health institutions, and 32(26.7%) in the village. The number of injections taken ranged from 1 - 60 over the last three months, with mean of 8.5+/-11.4 injections and mode of 2(18.2%) per person. Seventeen (3.4%) had been tattooed and only 10(2.0%) had undergone blood letting. Uvulectomy was reported in 197 (39.2%), ear piercing in 30(6.0%), dental extraction in 183(36.5%) and body incisions by 23(4.6%) of the study population at some time in their life.

Knowledge

Of the total study population, 294(58.6%) have heard about AIDS and 284(56.6%) knew at least one or more correct means of transmission. Two hundred and seventy eight(94.5%) of the people who knew about AIDS also knew that it kills. Only 59(11.8%) knew

what a condom is. 294(58.6%) of the population knew the health risks of having sex with prostitutes, 196(39.0%) didn't know and the rest said there is no risk.

Total scores on risk sexual practice(SPS), non sexual risk practice(NSPS) and knowledge (KS) were calculated(Appendix C). The frequency of these scores are shown in Table 8.

Risk perception

Of those who have heard about AIDS, 140(47.6%) believe that they can get AIDS, 124(42.2%) are afraid of getting the disease and 151 (30%) have changed their behaviour after hearing about the disease.

Total scores were then compared to the socio-demographic characterstics. The results are summarized on Table 9. Risk sexual practice was associated with young ages($p<0.03$), ability to read and write($p<0.05$), Gurage ethnicity($p<0.008$) and Orthodox religion(0.001). Non-sexual risk was higher in farmers selling in town($p<0.01$), unmarried ($p<0.04$), Kambatas($p<0.002$) and protestants($p<0.05$). Higher knowledge was found high in young ages($p<0.00001$), those who could read and write($p<0.00001$), among the educated($p<0.04$), Gurages($p<0.0003$) and the Moslems ($p<0.001$). Knowledge about AIDS on regression analysis, was associated with sexual risk (beta = 0.19, 95% C.I., $0.07 < 0.19 < 0.3$) but not with non sexual risk (beta = 0.06, 95% C.I., $-0.17 < 0.06 < 0.28$). Sexual and nonsexual risk were not correlated,($r = -0.01$, 95% C.I., $-0.1 < -0.1 < 0.08$).

Table 9. Associations of total scores with the socio demographic characterstics

VARIABLE	SPS Mean	SPS p-value	NSPS Mean	NSPS p-value	KS Mean	KS p-value
AGE		0.03		0.09		0.00001
15 - 19	1.467		1.833		2.933	
20 - 24	1.065		1.855		3.839	
25 - 29	0.786		1.993		3.100	
30 - 34	0.662		2.054		2.738	
35 - 39	0.404		2.096		2.526	
40 - 44	0.348		1.961		2.169	
45 - 49	0.582		2.235		1.949	
OCCUPATION		NS		0.01		NS
subsistence	0.637		2.004		2.551	
sell/town	0.522		2.239		2.469	
sell/villg	0.575		1.987		2.637	
READ/WRITE		0.05		NS		0.00001
neither	0.282		2.176		2.423	
only read	0.465		1.995		1.606	
both	0.708		2.046		2.881	
EDUCATION						
>= grade 1		NS		NS		0.04
1 - 3	0.683		2.039		2.744	
4 - 6	0.649		2.095		3.081	
7 - 12	0.857		1.982		3.714	
MARITAL ST		0.008		0.04		NS
Single	1.216		2.333		3.000	
Married	0.498		2.032		2.486	
Divorced	0.438		1.821		3.429	
Widowed	0.928		2.000		2.000	
ETHNICITY		0.008		0.002		0.0003
Kambata	0.815		2.352		2.222	
Hadiya	0.488		2.086		2.401	
Gurage	1.053		1.796		3.421	
RELIGION		0.001		0.05		0.001
Protestan	0.306		2.177		2.196	
Orthodox	0.833		1.960		2.659	
Moslem	0.803		1.963		2.966	

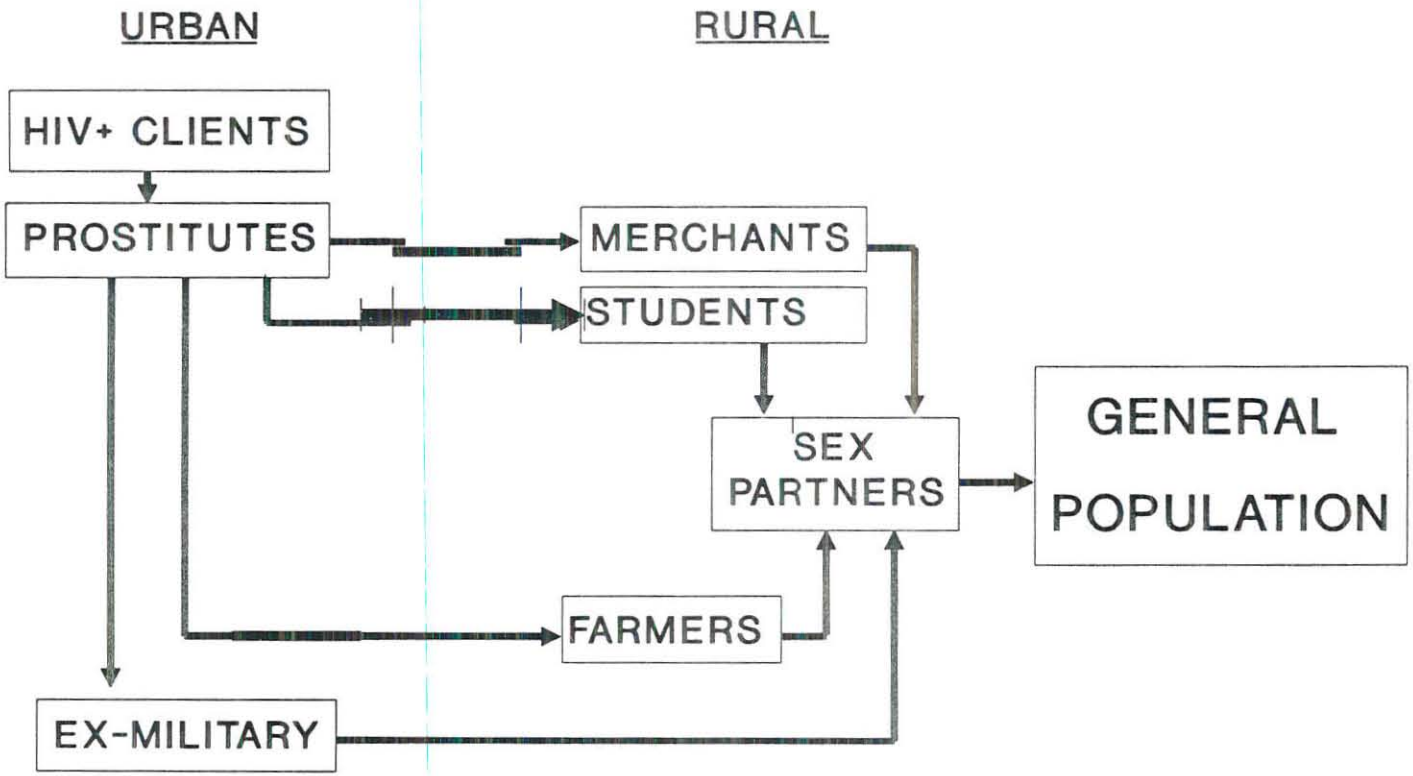
DISCUSSION

In Ethiopia, information on potential routes of spread of infection has been inadequate, particularly as it pertains to the spread of the epidemic from urban to rural populations. To examine this issue this study utilized qualitative as well as quantitative methods. Qualitatively, the potential routes were identified through focus group discussions with prostitutes, key informant interviews with community and religious leaders, and less formal interviews with health workers. From these discussions high risk subgroups in the population were identified and representatives of each were interviewed in order to verify routes of spread. High risk behaviours for acquiring HIV infection among rural farmers were also assessed through a questionnaire.

Beginning with the identification phase, attempts were made to interview reliable and knowledgable people who could provide accurate information on urban to rural population mobility patterns and the high risk sexual and non sexual practices putting rural populations at elevated risk of acquiring and spreading the infection.

Discussions with key informants and influential people in the study area revealed the potential routes of spread to be those subgroups of the population who are highly mobile between the urban and rural areas (refer to figure 2). Former soldiers, who have returned to their homes, rural merchants, rural students, rural residing long distance truck drivers, mini-truck and bus drivers,

FIGURE 2. Summary of routes of spread of HIV infection from urban to rural populations



worn. From this information it was possible to trace routes of spread between urban and rural populations.

High risk factors associated with heterosexual transmission of HIV infection are sex with multiple partners, sex with prostitutes, and a history of concurrent sexually transmitted diseases(11,12,13). Known high risk practices are highly prevalent in Ethiopian subgroups with high mobility between urban and rural populations. In this study, the reported extramarital multipartner sex by the subgroups was higher than those of the rural farmers(13.5%). The prevalence of extramarital sex in Arba-Minch was 22%(38) and in the Jimma study 10%(14), in male households of Zimbabwe of 31.2%(46), and 37.8% of high school students in Zimbabwe(34). Sex with sex workers by urban dwellers was also higher than the rural farmers population(6.7%) in the same study. Comparing to other studies elsewhere 11.1% was reported among urban male population in ArbaMinch (43), 47.2% of males in Jima study(14), 15.8% of high school students in Zimbabwe study(34), and 38.5% of teachers in Zimbabwe(47) had sex with prostitutes in some time preceding their survey periods. A past history of one or more sexually transmitted diseases was also found to be high in the subgroups interviewed. It can be seen that the mean frequency of intercourse per extramarital partner is also considerable in these high risk groups, especially those of the soldiers and students. The higher frequency may facilitate more effective transmission of the virus. On assessing the place where these people had their last extramarital sex, 20 - 40% reported to have it in town. At

the same time most of these are married currently. Hence, they are suitable routes for spread from the towns to their families and eventually to the village, at large. Additionally, most didn't wear condoms. Hence, unprotected high risk sexual activities are prevalent in this subgroups of population.

Among ex-soldiers the desire for high risk sexual activities is high. This, in turn, favours the hypothesis that these sub-groups will be incriminated as important vectors in the spread of HIV infection from urban to rural populations.

From Table 3, it can be seen that knowledge about AIDS, it's transmission, fatality and condoms is fairly high among the subgroups interviewed. It is markedly higher than to that of the rural farmers in the same study.

On Table 4, risk perception for AIDS is shown, where it is evident that in most of the risk groups the perception is not developed yet. The sample is small but the trend seems that rural males still don't have a strong risk perception and very few have changed behaviours.

In this study urban sex workers were also interviewed to verify sexual contacts with the rural population subgroups. This women confirmed sexual contacts with rural merchants, students, and soldiers. This substantiates the impression that these sub-groups of the population do, in fact have sexual relations with an important reservoir of the infection. The interviewed sex workers, were those who came to the KHH demanding condoms. Because of this the findings of the interviews may not be representative. This

group is too selective and biased sample. Some of the data on the demographic characters such as age, may not be acceptable. Additionally, mean duration of commercial sex work is calculated to be 2 years, this by itself seems unlikely and longer duration should have been expected.

Figure 2, summarizes the actual happening. The direction of spread being form urban HIV+ clients to the reservoir sex workers and then to the high risk groups. These in turn spreading it into the general population.

Assessing the socio-demographic characteristics of the farmers interviewed(Table 6), most of the study population is in the age group above 35 years of age, which is unusual compared to other studies done elsewhere in Ethiopia. In Arbaminch it was normally distributed(43), whereas in Jima study, it was more or less normally distributed with slight skewing to the left(14). Illiteracy was higher compared to urban populations(14,43). Looking at the marital status, currently married males were higher compared to the other 2 behaviour studies done in Ethiopia(14,43). Most of the study subjects were of Hadiya race, and unusually, majority of the rural population are protestants, which is not the case elsewhere in this country.

High risk sexual practices were assessed similarly to the way it was done in the high risk subgroups i.e., in terms of the most recent episode of extramarital sex. The prevalence of extramarital sex of 13.5% was comparable to that of Arbaminch town of 14.5%(43). 6.8% of the total population had sex with prostitutes, this was

lower compared to the high risk groups verified in this study, and also with that of Arbaminch town and Jima study(14,43). Condom usage was also very low. The reported history of STD in the past was also low compared to the urban population studied elsewhere(14,43). Desire towards having sex and particularly with sex workers is very low compared to the high risk groups studied, simultaneously. This goes in line with the opinion of the community and religious leaders in the identification phase. It was asserted from the very beginning that among the rural farmers high risk sexual practices are rarely seen. The findings also confirms that only few rural farmers do have high risk behaviours for spread of the infection in to the rural communities.

Figure 2 summarizes the pathway of the spread of the HIV infection from urban to rural populations. It's clearly seen that the studied sub-groups of population did exhibit the potential for spread into the general rural population. On the other hand, the figures for rural farmers should not be overlooked. Considering the vast majority of farmers, and found prevalence of high risk behaviours, it calls for immediate intervention. Since, the impact cant be neglected even at this early stage of the spread of the epidemic of HIV infection.

Non-sexual risk practices were also studied. Injections taken were very common as were tooth extractions and uvulectomy. Tattooes, ear piercing, body incisions were also studied and the prevalence was found to be low. This figures were lower compared to a KAP study finding in Jima town (14). Hence, the impact of

these practices, as seen in this study, is not appreciable in the spread of the infection. Though, the injections, especially given in the villages, are alarming and need immediate attention for intervention.

Knowledge about AIDS, it's transmission, risk of sex with prostitute were found to be not satisfactory. More striking is the very low knowledge about condoms. Considering about the situation of HIV/AIDS more knowledge was expected. These findings are not consistent with other studies in Ethiopia(14,43), Thailand(44) and Uganda(13), due to the low level of knowlege found in this study.

Risk perception of AIDS among the rural farmers is still not well developed. Only less than half of the population believe that they can acquire the disease. Only a third of the population has changed behaviour, Which on one hand is a good trend, yet more should be expected.

In summary, fewer rural farmers did have risk behaviours compared to the verified high risk groups and also compared to various urban populations. Figure 2, shows that however a farmers do play an important role in assisting the spread of the infection by having contacts with sex workers in the town and in tern spreading it into the general population.

The validity of the study was affected by a few biases. The main biases present are the interviewer and desirability biases. The honesty of responses could not completely be insured due to the nature of the questions themselves. This could have led to an undersestimate of high risk practice. Since, only a single episode of sexual intercourse was assessed, this too affects the internal validity of the study, by again underestimating the actual results.

It is worth discussing, that the generalizability of the findings of the this study to the rest of the rural population is doubtful. Especially, that of rural farmers, the findings are particularly unique to the locality. This is due to the fact that the study farmers' population had unique socio-cultural characterstics which doesn't apply to other Ethiopian rural communities. The majority of the population being protestants, and their life style gives them some unique identity. Whereas, the risk behaviour, and high risk sub-groups of population studied can be representative and their high risk sexual behaviours can be generalized to similar sub-groups in other parts of the country.

CONCLUSIONS AND RECOMMENDATIONS

This thesis research can be considered preliminary work in the field of identifying and verifying the potential routes of spread of infection from urban to rural areas and sexual and non-sexual risk behaviours of rural farmer population. This study in summary, revealed that frequent travellers or mobile groups of population were rural merchants(traders), rural students (learning in towns), former returning soldiers, rural residing truck and mini-bus drivers and former peasant association chairpersons. This subgroups of population exhibited high risk sexual practices for spread from urban to rural populations. High risk sexual and non-sexual risk practices were found to be low among rural farmers compared to other urban studies. Knowledge about AIDS was not satisfactory since everyone in the community needs to know about the disease and its features. Moreover knowledge about condoms was low.

Hence, based on this preliminary findings the following recommendations are given:

1. Extensive health education programmes should be instituted, from national to local levels, targeted towards the general population and emphatically to the high risk subgroups verified in this study.
2. All attempts should be made to increase the condom utiliztion rate by the high risk subgroups verified including the clients of comercial sex workers.

3. Further and continuing analytic studies on the routes of spread verified in this study should be carried out.
4. The actual prevalence of HIV in rural populations should be monitored.

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APPENDIX A: DATA COLLECTION FORMS/GUIDES

1. QUESTIONNAIRE FOR COMPONENT ONE - PHASE ONE (Q #1).

1. Extra-marital sexual practices in the communities.
2. Polygamous relations in the rural communities.
3. Mobility of population - who are they, what are their sexual behaviours i.e., their sexual contacts within and outside the rural communities.
4. Identifying the mobile population subgroups who may be assumed as potential routes for spread of the infection into the rural communities.
5. Traditional cutting, piercing, injecting and circumcision practices prevalent in the communities.

2. QUESTIONNAIRE FOR COMPONENT ONE - PHASE TWO

(Q #2) INTSTRUCTIONS

We are ready to start our interview. Most of the questions are about your personal life and not usually told to others. Some of the questions are about yourself, while others are not. Most of the questions are completely concerned about your personal life. Some of the questions may make you angry or may disappoint you. But since they are very important for the study we ask you excuse us for asking you such questions. For the success of this study we ask that you give us true answers. You have the right to give or not give answers to these questions. The results of this study will be based on the completeness and truthfulness of the answers given by you and other participants like you. Since they will greatly contribute to this study we hope that your answers will be complete and true.

This study is fully confidential and many persons like you will participate in it. Your name is not needed for the study either now or even in the future, and will not be mentioned anywhere.

I (the interviewer) will read the questions one by one and you will answer them accordingly. Please ask me to re-read any question that you have not understood.

For all the following questions I am going to ask you, and you will give me your answers by speaking loudly and I will record the answers. If you have not understood a question, please ask me anytime to repeat the question.

May I continue with questions now? If yes, continue, if no stop the interview.

N.B., read the instruction carefully and slowly to the respondent before proceeding with the questioning.

3. Q #2 HIV SPREAD QUESTIONNAIRE TO HIGH RISK SUB-GROUPS (POTENTIAL ROUTES) FOR SPREAD OF HIV INFECTION INTO THE RURAL COMMUNITIES

I. Socio-demographic variables

1. Id #_____

2. Permanent residential address _____

3. Age _____(years)

4. Occupation 1. merchant 2. Student 3. soldier
   4. others _____

5. Able to read or write? 0 - neither 1 - only read 2 - both

6. Educational status, grades completed _____

7. Marital status 0 - never married 1 - currently married
   2 - divorced/separated 3- widowed

8. Religion 1 - protestant 2- catholic 3 - orthodox
   4 - moslem 5 - no religion 6 - others

II. Sexual behaviour

1. Have you had sex in the last 3 months?
   0 - no 1- yes
   (If yes continue with #2, and if no go to #7.)

2. With how many women,(other than your wife)? #_____

3. With whom did you have sex last,(other than your wife)?
   1 - paid one 2 - not paid one

4. How many times did you have sex with her,(of #3)? #_____

5. Where did you have sex with her?
   1 - in the residential area 2 - in town 3 - other

6. Did you wear condoms during sex with her?
   0 - no 1 - yes

7. Do you like to have sex when not in your residential area?
   0 - no 1 - yes

8. Do like to have sex with prostitutes in town?
   0 - no 1 - yes

9. How often do you go to the town?
   1 - every day 2 - less than once in a week
   3 - every week

7. Do you usually go to the town?
   0 - no 1 - yes

8. Do you have sex when in town?
   0 - no 1 - yes

9. If yes, with whom do you have sex?
   0 - paid women 1 - not paid ones

10. Which of the following did you have before?
   a. Gonorrhoea 0 - no 1 - yes
   b. Syphillis 0 - no 1 - yes
   c. Chancroid 0 - no 1 - yes
   d. LGV 0 - no 1 - yes

11. Have you ever had intercourse through the anus?
   0 - no 1 - yes

III. Non sexual behaviour

12.Have you had injections in the last 3 months?
   0 - no 1 - yes, in this village 2- yes in health institutions 3 - in other villages
   (If yes, continue to #13, if no to #15.)

13. For what reasons did you get injections? Specify_____

14. How many did you have?#_____

15. Are you tattooed?
   0 - no 1 - yes

16. Have you done blood letting?
   0 - no 1 - yes

17. How many times did you do blood letting in the last 3 months?_____

18. Which of the following have you undergone in life time?
   a. uvulectomy 0 - no 1 - yes
   b. ear pierced 0 - no 1 - yes
   c. dental extracted 0 - no 1 - yes
   d. incisions 0 - no 1 - yes

IV. Knowledge

19. What's AIDS?_____(knows - 1, doesn't know - 0)
   (If knows continue to #20,21, and do 25, 26 and 27; if doesn't know then go to #22, 23, 24 and stop the interview.)

20. How is AIDS transmitted? Which of the following is true?
1 - from prostitute to client 2-sexual intercourse with any women 3 - social kissing 4 - drinking dirty water 5 - shaking hands 6 - injections

21. Does AIDS kill a person?
0 - no 1 - yes 2 - don't know

22. Do you know what's a condom?
0 - no 1 - yes

23. Are there any health risks of having sex with a prostitute?
0 - no 1 - yes 2 - don't know

24. If yes, what are they? Specify_____

V. Risk perception

25. Do you think you can get AIDS?
0 - no 1 - yes 2 - don't know

26. Are you afraid of geting AIDS?
0 -no 1 - yes 2 - don't know

27. Have you changed your behaviour after hearing about AIDS?
0 - no 1 - yes

----------THANK YOU----------

5. Q #4 - QUESTIONNAIRE TO THE SEX WORKERS FOR COMPONENT ONE/PHASE TWO OF THE STUDY.

1. Age _____years

2. Duration prostitution_____years

3. Present Address _____

4. Have you practised prostitutions elsewhere before?_____

5. Which of the clients did you have in the last week?
   a. rural merchants_____
   b. urban merchants_____
   c. rural farmers_____
   d. rural students_____
   e. military_____
   f. others_____

6. Do your rural clients use condoms during sex?
   0 - no 1 - yes 2 - sometimes

-------Thank you-------

APPENDIX B. CONSENT FORM

Thank you for allowing us to share your precious time for a brief discussion about a study being conducted in Limu Awraja.

This study is being conducted in among farmers, merchants, students and so on. Persons who fulfils the criteria for inclusion into the study has been selected by chance to participate in this study. Based on this, you were selected to participate in the study. You were selected for the study strictly by chance (as you have seen it for your self), and by no other means.

This study will be conducted through interviews. The study will involve various intimate and private life questions. These questions need a private setting in which only you land the interviewer will carry out the interview. We would like to assure you that this privacy, shall strictly be secured throughout the process of the interview, that the results of the interview and study shall be kept strictly confidential, and that your name shall never be mentioned in relation the study, either now or in the future. You have a full right to participate through out, or to discontinue at any time you feel like doing so, or never participate in the study.

Are you willing to participate in the study?

Yes_____

No_____

APPENDIX C. SUMMERY SCORING INSTRUCTIONS

The following scores were calculated from Q #3, for rural farmers:

a. Sexual practice score (SPS)

variable name		value name	label	score
II. 2 # extra-marital women		0		0
		1		1
		2		2
		3		3
3	last women sex with	0,2-6	not paid	0
		1	paid	1
5	place	1	same village	0
		2	in town	1
6	condoms	0	no	1
		1	yes	0
10a	gonorrohea	0	no	0
		1	yes	1
10b	syphillis	0	no	0
		1	yes	1
10c	chancroid	0	no	0
		1	yes	1
10d	LGV	0	no	0
		1	yes	1

b. Non-sexual practice score (NSPS)

12 injections	0	no	0
	1	in this vill.	1
	2	in health inst.	1
	3	other places	1
14 # of injections		1 - 4	0.5
		5 - 9	1
		>9	1.5
15 tattooed	0	no	0
	1	yes	1
16 blood letting	0	no	0
	1	yes	1
18b ear pierc.	0	no	0
	1	yes	1
18d incisions	0	no	0
	1	yes	1

c. Knowledge score

19 know AIDS	0	no	0
	1	yes	1
20 transm.	0	not correct	0
	1	correct	1
	2	combination	1
21 AIDS kill	0	no	0
	1	yes	1
	2	don't know	0
22 know condom	0	no	0
	1	yes	2
23 risk prost.	0	no	0
	1	yes	1
	2	don't know	0

Appendix D

Amrahic versions of instructions, consent and the questionnaires

የፈቃደኝነት ማረ[illegible]ገለጫ

በለሙ አውራጃ ውስጥ ስለሚ[illegible]ካንዱ ጥናት ቢጭራ ለመወያየት ውድ ጊዜዎን አንዱንጋራ ስለፈቀዱልን እ[illegible]ስግናለን::

ይህ ጥናት በአውራጃው ውስጥ ከሚገኙት 10 ገበረ ማህበራት ውስጥ በዕጣ የተመረጡ በጠቅላላ አምስት መቶ ሃያ ስምንት /528/ ገበረያቸ አንዲሁም ነጋዴዎች፣ ተማሪዎች፣ ወታደሮችን ከሊሎችም ጋር ይካሄዳል::

በጥናቱ ውስጥ ለመሳተፍ የሚያስፈልጉትን መመዘኛዎች የሚያሟላ አንድ ሰው ብቻ በዕጣ /ዕድል/ ጥናቱ ውስጥ አንዲሳተፍ ይመረጣል:: በዚህ መሠረት እርስዎ በጥናቱ ውስጥ አንዲሳተፉ [illegible]የል:: እርስዎ ለጥናቱ የተመረጡት ፍጹም በዕድል ነው እንጂ በምንም ሌላ መንገድ አይደለም::

ይህ ጥናት የሚካሄደው በቃለ መጠይቅ አማካኝነት ነው ቃለ መጠይቁ እርስዎ ይመቸኖል ብለው በመረጡት፣ ቦታ ይካሄዳል:: በተለያዩ ውስጣዊና የግል ህይወትን የሚመለከቱ ጥያቄዎችን ይይዛል እነዚህ ጥያቄዎችን እርስዎና አንዱ ቃለ መጠይቅ አቀራቢ /አኒ/ ብቻ ሆነን ቃለ መጠይቁን የምናካሄዱበት ሰወር ያለ /ጸብቅ/ አካባቢን መር[illegible]ጣን::

የቦታው ሰዋራነት በቃለ ም[illegible]ወቅት በሙሉ በቡድኑ አንዲጠበቅ፣ የቃለ መጠይቁና የጥናቱ ውጤት ፍ[illegible]ነነ ሚስጥራዊነት ተጠብቆ አንዲቆይ፣ እና የእርስዎም ስም አሁንም ሆ[illegible]ጥናት ጋር በተያያዘ /በዘለሚ/ መልኩ ፈፅሞ አንደማይጠቀስ ለናረጋግጥላዎ እንወዳለን:: በጥናቱ ውስጥ ሙሉ በሙሉ የመሳተፍ፣ ደምረው የማቋረጥ፣ በፈለጉበት በማንኖውም ጊዜ የማቋረጥ ወይም ፈጽሞ ያለመሳተፍ ሙሉ መብት አለዎት::

በጥናቱ ውስጥ ለመሳተፍ ፍቃደኛ ነዎትን? አዎ_____

የለም_____

መመሪያዎች

አሁን ቃለ መጠይቁን ለመጀመር ተዘጋጅተናል አብዛኛዎቹ ጥያቄዎች ስለርስዎ የግል ሕይወት የሆኑና አብዛኛውን ጊዜ ለሌሎች የማይነገሩ ናቸው:: አንዳንዶቹ ጥያቄዎች ምናልባት ያናድዱዎት ወይም ያበሳጭዎት ይሆናል ነገር ግን በጣም አስፈላጊ በመሆናቸው እንደዚህ አይነት ጥያቄዎችን ስለ ጠየቅንዎት ይቅር ታዎን እንጠይቃለን:: ለዚህ ጥናት [illegible]ካት እውነተኛ መልሶችዎን እንዲሰጡን እንጠይቃለን ለነዚህ ጥያቄዎች [illegible]ስጠትም ሆነ ያለመስጠት ሙሉ መብት አሎዎት ለጥናቱ ትልቅ አስተዋፅኦ ስለሚኖው የሚሰጡት መልስ የተሟሉና እውነተኛ እንደሚሆን ተስፋ አለን::

ይህ ጥናት ሙሉ በሙሉ ሚስጥራዊ የተጠበቀ ብዙ እንደርስዎ ያሉ ሰዎች የሚሳተፉበት ነው:: የተሳታፊ ስም በዚህ ጥናት አሁንም ሆነ ወደፊት ፈጽሞ የማያስፈልግና በማንኛውም ቦታ የማይገለፅ ነው::

እኔ /ቃለ መጠይቅ [illegible] ጥያቄዎችን እንዴ በለንደኑ ሳነብልዎ አርስዎም ተገቢውን መልስ ይሰጡኛል ጥያቄዎ ካልገባዎት በዱጋሚ እንዲነበልዎት እንዲጠይቁኝ አደራ አሳለሁ::

ጥያቄዎችን መቀየቅ ልጀምር? አዎ ካሉ ጀምር የለም ካሉ መጠይቁ እዚሁ ላይ ይቀጣል::

አያንዳንዱ ጥያቄ በዝርዝር በጥንቃቄ እንብብሎቸውና አንዱ ጥያቄ በትክክል ሲመለስ ወደሚቀጥለው ተሸጋገር::

መጠይቅ ቁጥር 2 ከተለያ [illegible] የሚጠየቅ
ነጋዴዎች፣ ተጣሪዎች፣ ወታ[illegible]ሮች

መ ለ ያ

1. የመታወቂያ ቁጥር_____
2. የመኖሪያ ቦታ_____
3. ዕድሜ
4. ሥራ 1. ገበሬ 2. ተጣሪ 3. ወታደር 4. ሌላ_____
5. መጻፍና ማንበብ ይችላሉ 1. የለም 2. ማንበብ ብቻ 3. ሁለቱንም
6. የትምህርት ደረጃ /የጨረሱት ክፍል/____
7. የጋበቻ ሁኔታ 0/ ያላገባ 1. ያገባ 2. የፈታ 3. የሞተበት
8. ሐይማኖት 1. ኘሮቴስታንት 2. ካቶሊክ 3. ኦርቶዶክስ 4. እስላም
5. ሐይማኖት የሌለው
9. ብሔረሰብ 1. ከምባታ [illegible] 3. ጩራ 4. አርጮ 5. አማራ
6. ሌላ____

2. የግብረ ሥጋ ግንኙነትን በተመለከተ ያለው ባህርይ

1. ባለፈው 3 ወር የግብረ ሥጋ አርገው ያውቃሉ?
0. የለም 1. አዎ
/አዎ ካሉ ወደ 2ኛ ያቴ ይሂዱ የለም ካሉ ወደ 7ኛ ያቴ ይሂዱ/
2. ከስንት ሴቶች ጋር?____ /ከሚሳተፉት ወይም ከሚያዘወትሯት ሴት/ጋዮች/
3. በመጨረሻ የግብረ ሥጋ ግንኙነት ያደረጉት ካየትኛዋ ጋር ነው::
1. ከሚከፈላት ጋር 2. ከማይከፈላት ጋር

5. ከአርሷ ጋር ግንኙነት ያደረጉት የት ነው?
   1. በዚህ መንደር 2. በከተማ 3. በሁለቱም
   4. ሌላ ራቅ ያለ መንደር ውስጥ

6. ከአርሷ ጋር ግንኙነት [illegible] ኮንዶም አርገው ነበርን?
   0. የለም 1. አ[illegible]

7. ከመኖሪያዎት ቦታ ሌላ [illegible] ግንኙነት ማድረግ ይወዳሉ?
   0. የለም 1. [illegible]

8. ከሴተኛ አዳሪዎች ጋር ግንኙነት አርገው ያውቃሉን?
   /በከተማም ሆነ በመንደር ውስጥ/
   0. የለም 1. አዎ

9. ወደ ከተማ በስንት ጊዜ ይሄዳሉ
   1. በየቀኑ 2. በሳምንት ከአንድ ጊዜ ያላነሰ 3. በየሣምንቱ

10. ከዚህ በፊት ከነዚህ በሽታዎች ይዞት ያቃል?
   1. ጨብጥ 0. የለም 1. አዎ
   2. ቂጥኝ 0. የለም 2. አዎ
   3. ከርክር 0. የለም 3. አዎ
   4. ባምቡሌ 0. የለም 4. አዎ

11. በፊንጥጥ በኩል ግንኙነት አርገው ያውቃሉን?
   0. የለም 1. አዎ

12. ኤይድስ ማለት ምን ማለት ነው?
   / ካወቁ ወደ ጥያቄ 1[illegible] [illegible]ቁ ወደ ጥያቄ 15 ይሂዱ 7 በዝማሪያ
   ጥያቄ 18፣19፣20ን ፡

13. ከነዚህ ውስጥ የኤይድስ [illegible] መንገዶች የትኞቹ ይመስሉዎታል?
   1. ከሴተኛ አዳሪዎች ወደ ደንበኞቿ 2. በግብረ ሥጋ ግንኙነት ከማንኛውም ሴት ጋር በማድረግ
   3. በመሳሳም 4. የጋራ ውሀ በመጠጣት 5. በመጨባበጥ
   6. በመርፌ 7. ደም በመቀበል 8. በእርግዝና ፣ ለልጅ በመወለድ
   9. በማስወረድ 10. በሌላ ፤

14. ኤይድስ ሰው ይገላል?
   0. የለም 1. አዎ 2. አላውቅም

15. ኮንዶም ምን እንደሆነ ያውቃሉ?
   0. የለም 1. አዎ

16. ከሲዳኖ አጻሪያቸ ጋር የገበረ ሥጋ ግንኙነት ማዱረግ ለጡና ጠንቱ ያስከትላል?

0. የለም 1. አ 2. አላውቅም

17. አያ ኬሎ ምን አይነት ቦ ይገለጹ _____

18. አዱስ ይይዘኖል ብለው ያ

0. የለም 1. ሰ 2. አላውቅም

19. አዱስ ይይዘኖል ብለው ይፈራሉ?

0. የለም 1. 2. አላውቅም

20. ሰለ አዱስ ከሰው በኋላ አ ያት ተቀይሯልን?

0. የለም 1. አ

መጠይቅ ቁጥር 3

<u>ለገበሬዎች የሚጠየቅ</u>

1. መለያ

1. መታወቂያ ካርድ ቁጥር ________
2. ዕድሜ ________
3. ሥራ ____________________
   1. ከእጅ ወደ አፍ ነ እርሻ
   2. የገበያ ሠብሎችን አብቅሎ በመንደር ውስጥ በመሸጥ
   3. የገበያ ሰብሎችን ሎ ከተማ ወስዶ በመሸጥ
4. ማንበብና መጻፍ፣
   1. ሁለቱንም ይችላል
   2. ሁለቱንም አይችልም
   3. ማንበብ ብቻ ይችላል
5. የትምህርት ደረጃ ______ ትምህርትን የጨረሰ እንደ ሆነ ክፍሉ ይቆጠራል/
6. ሀ/ የጋብቻ ሁኔታ
   1. ያላገባ 2. ባለትዳር የሆነ
   3. አግብቶ የፈታ 4. ሚስቱ የሞተችበት
7. ባለትዳር ከሆነ ስንት ሚስቶች አሉት? ________
8. ዘር
   1. ከምባታ 2. ሀዲያ 3. ጉራጌ 4. አማራ 5. ስ
   6. ሌላ፡ ________
9. ሀይማኖት
   1. ፕሮቴስታንት 2 3. ኦርቶዶክስ 4. እስላም
   5. ሀይማኖት የሌለው

2. ወሲባዊ የገበሬዎች ባህሪያት፣

1. ባለፈው 3 ወር የግብረ ሥጋ ግንኙነት አድርገው ነበርን?

   0/ የለም 1/ አዎ

   /አዎ ካሉ ከጥያቄ 2–6 ያለውን ይጠይቁ/ የለም ካሉ ወደ ጥያቄ 7 ይሂዱ/

2. ከስንት ሴቶች ጋር ? ____ [illegible]ቤትዎም ሌሳ/

3. በመጨረሻ የግብረ ሥጋ ግንኙነት ያደረጉት ከማን ጋር ነበር?___/ሥራዋ ይገለጥ/

   0/ ከማይከፈላት ጋር 1/ ከሚከፈላት ጋር

4. ከእርሷ ጋር ስንት ጊዜ የግብረ ሥጋ ግንኙነት አደረጉ?

5. ከእርሷ ጋር ግንኙነት ያደረጉት የት ነው?

   0/ በዚሁ መንደር ውስጥ 1/ በከተማ

6. ከእርሷ ጋር ግንኙነት ሲያረገ [illegible] አድርገው ነበርን?

   0/ የለም 1/አዎ

7. አዘውትረው ወደከተማ ይሄዳሉ?

   0/ የለም 1/ አዎ፣ በ15 ቀን አንዴ ጊዜ እሄዳለሁ

   2/ በ15 ቀን ከአንዴ ጊዜ በላይ እሄዳለሁ

   /አዎ ካሉ ወደ ጥያቄ 8 ይሂዱ፣ የለም ካሉ ወደ ጥያቄ 10 ይሂዱ/

8. ወደ ከተማ ሲሄዱ የግብረ ሥ[illegible]ነት ያደርጋሉ?

   0/ የለም 1/ አዎ

9. አዎ ካሉ ከማንኛዋ ጋር

   0/ ከሚከፈላት ሴት ጋር 1/ ከማይከፈላት ሴት ጋር

10. ከነዚሁ ውስጥ የትኞቹ ከዚህ በፊት ይዘውዎት ያቃሉ?

    1. ጨብጥ 0. የለም 1. ነበር
    2. ቂጥኝ 0. የለም 1. [illegible]
    3. ከርክር 0. የለም 1. [illegible]
    4. ባምቡሌ 0. የለም 1. [illegible]

11. በፊንጢጣ በኩል የግብረ ሥጋ [illegible]ነት አድርገው ያውቃሉን?

    0/ የለም 1/ አዎ

12/ ባለፉት 3 ወራት መርፌ ተወግተው ያውቃሉን?

0/ የለም 1/ መንደር 2/አዎ በቤና ተጀማት
3/ አዎ ሌላ ቦታ

/ አዎ ካሉ ወደ ጥያቄ 13 የለም ካሉ ወደ ጥያቄ 15 ይሸጓሉ/

13. ለምን ነበር መርፌ የተወጉት ? ይገለፅ _____

14. ስንት መርፌ ተወግተው ነበር? _____

15. ተነቅሰዋል ?

0/ የለም 1/ አዎ

16. ተበጥተው ያውቃሉ ?

0/ የለም 1/ አ[illegible] ? ካሉ ወደ ጥያቄ 17፣ የለም ካሉ ወደ ጥያቄ 18 ይሂዱ::/

17. ምን ያህል ግዜ ተበጥተዋል ? _____

18. ከሚከተሉት የትኖቹን አድርገዋል?

ሀ/ እንጥል ማስቆረጥ ለ/ የለም 1/ አዎ
ሐ/ ጅር መበሳት የለም 1/ አዎ
መ/ ጥርስ ማስነቀል [illegible]/ የለም 1/ አዎ
ሠ/ ሰውነት መቀደድ 0/ የለም 1/ አዎ

19. ኤድስ ማለተ ምን ማለት ነው?___

/ከወቄ ወደ ጥያቄ 19፣ አላውቅም ካሉ ወደ ጥያቄ 22 ይሂዳሉ
በተጨማሪም ጥያቄ 25፣26፣27ን አይጠይቂቸው

20. ከነዚህ ውስጥ የኤድስ መተላለፊያ መንገዶች የትኖች ይመስሉዎታል?

1/ ከሴተኛ አዳሪ ወደ ደንበኛዋ
2/ የግብረ ሥጋን ግንኙነት ከማንኛውም ሴት ጋር በማድረግ
3/ በመሳሳም
4/ ቀሽሽ ውሀ በመጠቀ
5/ እጅ ለእጅ በመጨባበጥ
6/ መርፌ በመወጋት
7/ ደም በመስጠት
8/ አላውቅም

21/ ኤድስ ሰውን ይገድላልን?

0/ አይገድልም 1/ [illegible] 2/ አላውቅም

22/ ስንጋም ያውቃሉ?

0/ የለም 1/ አዎ

0/ የለም 1/ መንደር 2/አዎ በቤና ተቋማት
3/ አዎ ሌላ ቦታ

/ አዎ ካሉ ወደ ጥያቄ 13 የለም ካሉ ወደ ጥያቄ 15 ይሸጋገሉ/

13. ለምን ነበር መርፌ የተወጉት ? ይገለፅ _____

14. ስንት መርፌ ተወግተው ነበር? _____

15. ተነቅሰዋል ?

0/ የለም 1/ አዎ

16. ተበጥተው ያውቃሉ ?

0/ የለም 1/ አ[illegible] ? ካሉ ወደ ጥያቄ 17፣ የለም ካሉ ወደ ጥያቄ 18 ይሂዱ::/

17. ምን ያህል ግዜ ተበጥተዋል ? _____

18. ከሚከተሉት የተኖቹን አዉርገዋል?

ሀ/ እንጥል ማስቆረጥ ለ/ የለም 1/ አዎ
ሐ/ ጅር መበሳት የለም 1/ አዎ
መ/ ጥርስ ማስነቀል [illegible] የለም 1/ አዎ
ሠ/ ሰውነት መቀደድ 0/ የለም 1/ አዎ

19. ኤድስ ማለተ ምን ማለት ነው?___

/ከወቄ ወደ ጥያቄ 19፣ አለጭም ካሉ ወደ ጥያቄ 22 ይዝላሉ
በተጨማሪም ጥያቄ 25፣26፣27ን አይጠይቂቸው

20. ከነዚህ ውስጥ የኤድስ መተላለፊያ መንገዶቹ የትኞቹ ይመስላቻል?

1/ ከሴተኛ አዳሪ ወደ ደንበኛዋ
2/ የግብረ ሥጋን ግንኙነት ከማንኛውም ሴተ ጋር በማድረግ
3/ በመሳሳም
4/ ቀሽሽ ዉሀ በመጠቀ
5/ አዉ ለአዉ በመጨባበጥ
6/ መርፌ በመወጋት
7/ ደም በመስጠት
8/ አለጭም

21/ ኤድስ ሰውን ይገድላልን?

0/ አይገድልም 1/ [illegible] 2/ አለዉቅም

22/ ክንባም ያውቃሉ?

0/ የለም 1/ አዎ

23/ ከሴተኛ አዳሪ ጋር የግብረ ሥጋ ግንኙነት ማድረግ ለጤና ጠንቅ ያስ ከተሳለ?

0/ የለም 1/ አዎ 2/ አላውቅም

24/ አዎ ካሉ ፤ ምን አይነ ? ይገለፅ____

25/ ኤድስ ሲይዘኝ ይቸላል ብለው ያስባሉ?

0/ የለም 1/ 2/ አላውቅም

አዎ ካሉ ወደ ጥያቄ 26 ሰለም ካሉ ወደ ጥያቄ 27 ይሂዱ/

26/ ኤድስ ይይዘኛ ብለው ይሰጋሉ?

የለም 1/ አዎ 2/ አላውቅም

27/ ስለ ኤድስ ከሰሙ በኋላ አስተሳሰብዎ ተቀይሯል?

0/ የለም 1/ አዎ

መጠይቅ ቁጥር 4

ለቡና ቤት ሠራተኞች /ለሴተኛ አዳሪዎች/ የሚደረግ ቃለ መጠይቅ፤

1. ዕድሜ ______________________ / ዓመት/
2. በሴተኛ አዳሪነት የቆየችበት ጊዜ ______________ /ዓመታት/
3. የአሁኑ አድራሻ ______________ /ቀበሌ/ገበሬ ማህበር/
4. ከዚህ በፊት በሴተኛ አዳ[illegible]ራችበት ቦታ ______________
5. በየሳምንት በግምት ከምን ጣገደች /የተለያዩ/ ጋር የግብረ ሥጋ ግንኙነት ታደርጋለች::
6. ከነዚህም መሃል ስንቶቹ የሚከተሉትን ይሆናሉ?

   ሀ. የገጠር ነጋዴዎች ______________
   ለ. የከተማ ነጋዴዎች ______________
   ሐ. ገበሬዎች ______________
   መ. የገጠር ተማሪዎች ______________
   ሠ. ወታደሮች ______________
   ረ. ሌሎችም ______________

7. ከገጠር ደንበኞቿ በግብረ ሥጋ ግንኙነት ወቅት ስንቶቹ ኮንዶም ይጠቀማሉ?

   0. አንዳቸውም አይጠቀሙም 1. ጥቂቶቹ ይጠቀማሉ
   2. ሁሉም ይጠቀማሉ::

DECLARATION

I, the undersigned, declare that this thesis is my original work, has not been presented for a degree in this or any other university, and that all sources of material used for the thesis have been fully acknowledged.

Name SHABBIR ISMAIL M.D.

Signature

Date of Submission MARCH 31/1992

This thesis has been submitted for examination with my approval as university advisor.

Charles P. Larsen

Advisor's Name

Signature