HIV-1 INFECTION AMONG EMPLOYEES OF THE ETHIOPIAN FREIGHT TRANSPORT CORPORATION

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SUMMARY: In the study on HIV-l infection conducted in July 1988, 995 long distance truck drivers, their assistants, and lorry technicians employed by the Ethiopian Freight Transport Corporation (EFTC) were enrolled. 89.4% of trips made by the drivers were along the Addis Ababa -Assab road. The HIV prevalence rates were 13% among 468 drivers, 12.9% among 209 drivers assistants, and 4.1% among 318 technicians. The prevalence rate among those who served for < 5 yrs was 4.7% (n = 297) .Those who served longer in the Corporation (82.9% of whom are drivers) had a mean prevalence rate of 12.5% (n=698). Drivers had more sexual partners and more frequently experienced sexually transmitted diseases than the technicians. The study indicated that the long distance truck drivers in Ethiopia practiced frequent contacts with female sex workers. They were at a significantly higher risk to acquire HIV infection than the technicians employed at the same corporation.

INTRODUCTION

Travel within and outside a country has been known to be an important contributing factor enhancing the spread of many communicable diseases. Recent studies in Africa revealed that long distance travel was associated with increased risk of HIV sero-positivity in adult populations (1-3).

Preliminary sero-surveys carried out in Addis Ababa between 1984 and 1987, indicated that HIV infection existed among different population groups, although at a relatively low rate. (4-10). One of the identified groups practicing high risk behaviour for HIV infection in Ethiopia is females practicing multi-partner sexual contacts (MPSC) (11). The sero-epidemiological survey on this group of females, which was conducted in 1988 in 23 towns including those towns along the Addis Ababa Assab road, indicated that the HIV prevalence rates varied from 1.3% to 38.1 %. (11). The long distance truck drivers, due to their frequent travel away from home, were expected to represent another high risk group for HIV infection. This paper presents the results of the sero-surveillance on HIV infection among the long distance drivers, their assistants, and lorry technicians. It intends to relate the contribution of frequent occupational travel to HIV transmission.

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SUBJECTS AND METHODS

All 995 employees (468 long distance truck drivers, 209 assistants and 318 truck maintenance technicians) employed by the Ethiopian Freight Transport .Corporation (EFTC) were enrolled for the study of HIV-1 infection which was conducted in July 1988. The individuals were included in the study with informed consent, and they were offered group counselling. Data regarding family history , social status, sexual practices, and travel history 'pf the study subjects were collected during the interviews. Information was kept confidential.

Blood was drawn from each person sera were separated by centrifugation at 1500 RPM. All sera were screened by a commercially available enzyme linked immunosorbent assay (ELISA - Welcozyme). HIV-1 antibody positive samples by the first ELISA test were repeated. Double ELISA positive samples were further tested by Western blot (BIORAD) following the manufacturers recommendation. The analysis of results was done by computer using "EPIINFO" software.

Geographic distribution of travel routes of the truck teAIDS (drivers and assistants) was not even: 89.4% of trips made were along the busiest road in the country connecting the
capital to the major port city, Assab. The most frequently reported places of night rest were at the towns of Adaitu (28%), Gewane (13.6%), Awash-Arba (12.3%) and Nazareth (16.8%) (Fig. 1).

The social status and sexual practices of the drivers group and technicians is summarized in table 1. The mean age of the drivers and assistants was 37.1 years, and 28.9 for the technicians. Technicians had achieved a higher level of education. 69.5% had completed between the 9th and 12th grades, while 15.1% of the drivers and assistants had completed the corresponding level. 74.6% of drivers and 35.2% of technicians were married. 19.9% and 22.6% of these drivers and technicians respectively claimed to have sexual contact only with their wives. 8.1% of drivers and 3.1% of technicians, had one to three extramarital sexual partners per week while 68.5% of the driver's group and 47.5% of the technician's group reported one to three sexual partners per month.

Peno-vaginal sex was reported as the only sexual practice by 96.3% of the drivers group and 93.7% of the technicians. The technicians more frequently practiced peno-anal sex with female sex workers, 6.3% (n= 20), than drivers, 2.3%, n = 16 ($p<0.001$}. Change of
sexual partners per week was common in those who served more than five years and among older age groups. Regular use of condoms was quite low: 3.7% and 3.5% among the drivers and technicians respectively.

Table: Social features and sexual practices of the employees of the Ethiopian Freight Transport Corporation (EFTC), Addis Ababa, 1988 Drivers and Maintenance Sign

Characterstics	Drivers and Assistants (677)	Maintenance technicians (318)	Significance
Mean age (years)	37.1yrs	28.9yrs	P<0.0001
Married	505(74.6%)	112(35.2%)	P<0.001
Unmarried	172(25.4%)	206(64.8%)	P<0.001
Grades completed grades			
1-8	575(84.9%)	97(30.5%)	P<0.0001
9-12	102(15.1%)	221(69.5%)	P<0.001
Sexual partners:			
Single partner only	135(19.9%)	72(22.6%)	P>0.3
1-3 per week	55(8.1%)	10(3.1%)	P<0.01
1-3 per month	464(68.5%)	151(47.5%)	P<0.01
P-vaginal only	652(96.3%)	298(93.7%)	P<0.06
Peno-anal sex	16(4.0%)	20(6.3%)	P>0.01
Peno-oral sex	10(1.5%)	2(0.6%)	P>0.2
Use of Condom(Regular)	25(3.7%)	11(3.5%)	P>0.9

Among truck drivers and assistants 32.3% reported a history of sexually transmitted diseases in the past three years, while only 26.3% of the technicians reported a history of sexually transmitted diseases ($p < 0.02$). The overall prevalence rates of HIV-I infection were 13% (n= 468) among the drivers, 12.9% (n = 209) among drivers' assistants and 4.1% (n = 318) among the technicians. The driver's group had the highest prevalence rate (15.3%) in the age group 30-39 years; the technicians had the highest prevalence (5.7%) in the 40-49 years age group. (Fig 2).

The prevalence rates were lower in the technicians in all corresponding age groups. Persons employed for less than five years in the Corporation had HIV prevalence rate of 4.7%, whereas persons employed for longer periods (82.9% of whom are drivers) had a mean prevalence rate of 12.5% , ($p < 0.001$).

The prevalence rates in the drivers and technicians decreased with increasing levels of education, i.e, number of school grades completed ($P < 0.01$), (Fig 3). A statistically significant association was found between the occurrence of other sexually transmitted diseases and frequency of HIV infection in the study groups. ($p < 0.01$).

DISCUSSION

As a group, the drivers and their assistants were considered at a higher risk for HIV infection because. they stayed for extended periods away from their families for occupationa1 reasons. They were therefore likely to practice multi-partner sexual contacts (MPSC).

Technicians who did maintenance work on the vehicles, and rarely went out of their residence town, were less frequently involved in MPSC. The two groups significantly varied in their social status and sexual practices. The lorry technicians were much younger and better educated. The number of sexual partners both per week and per month was much higher in the driver's group than among the technicians.

However, a change of partners was much lower than reported by the females practicing MPSC in the towns where the drivers stopped for overnight rest (Adaitu, Gewane, Awash-Arba and Nazareth) (11). The corresponding HIV prevalence rates among drivers who stayed in these towns for overnight rest were: Adaitu 11.1%, Gewane 15.9%, Awash-Arba 15.4%, and Nazareth 16.7% respectively. Although the HIV prevalence rate among the female sex workers in Adaitu with sex partners of different professions was higher (32.8%) than in the other 3 towns (11), the prevalence among the drivers, who spent nights mostly in Adaitu, was lower. This is probably due to the fact that drivers and their assistants spent the night in a hostel of the Ethiopian Freight Transport Corporation where females were not allowed to enter. The prevalence of HIV among drivers, according to their town of overnight stay, did not indicate a significant difference in the other three towns.

Peno-vaginal sex was the prevailing practice, which was similar to what the MPSC females indicated (11). The technicians though reported peno-anal sex with their female partners about three times more frequently than the drivers ($P< 0.01$). However, none of these was positive for HIV-l antibodies. This is most likely due to the rare practices of peno-anal sex in general, which didn't indicate any significant difference from peno-vaginal sex. Preliminary discussions with the target population indicated that the symptoms such as urethral discharges and genital ulcers were well known to this population. Sexually transmitted diseases frequently occurred in both groups; gonorrhea was the most common.

Use of condoms was not a common practice among the study population. The results were similar to the study on females practicing MPSC in Ethiopia (11). However, educated men were found to have used condoms more frequently. Intravenous drug abuse and homosexuality were not found among the study population.

The drivers were three times more affected by HIV-l than the technicians, ($p < 0.001$). The HIV prevalence among drivers, who responded that they had sex only with their wives, was 8.1% (n= 135); among those who responded that they had other sex partners the rate was 14.2% (n=542). The difference was not, however, statistically significant ($p > 0.05$). The highest HIV prevalence rate observed in the driver's group, aged 30-39 years, and technician's group aged 40-49 years, might be a result of the low educational level, and the high rate of partner change. In general, the prevalence of HIV-l infection declined with better education in both groups. With increase of the age, the level of education decreased, and the HIV prevalence increased. Marital status didn't affect the HIV prevalence rate. Comparing drivers and technicians in the same age groups and of the same educational levels, showed that the HIV prevalence rates were higher in the drivers group (fig 2,3). This might be due to the fact that drivers had a higher number of sexual partners per week and were also reportedly more affected by sexually transmitted diseases.

Only 19 individuals had received blood transfusions in the previous three years in body groups; the prevalence of HIV among these individuals was 2% .Because of the small number of individuals tested, it is not possible to make any conclusion from this data. Persons employed for more than five years in the Corporation (82.9% of them are drivers) had a higher HIV prevalence rate than those who had served a shorter time. The reasons might be a cumulative effect of exposure to various sexual partners and repeated
episodes of STD, which are established risk factors in studies elsewhere (13-21).

These facts indicate that the long distance truck drivers in Ethiopia are at high risk to contract HIV infection. This may be associated with their frequent mobility which promotes high risk behaviour, more in drivers than the technicians, who are employed at the same Corporation and travel less frequently.

The long distance truck drivers are also at a higher risk of acquiring HIV infection than the general population and blood donors (10) but they are less affected than their female partners practicing MPSC (11).

Therefore, frequent change of sexual partners, lower educational level, and repeated episodes of sexually transmitted diseases, are considered risk factors for HIV transmission. Frequent travel promoted high risk behaviour, which in turn increases the risk of acquiring HIV infection. Intensive intervention programmes, including health education aimed at changing risk behaviour, promoting condom use, and at, the same time sustaining condom availability to both groups, are essential to decrease HIV, transmission.

FIGURE 1. MAJOR TRAVEL ROUTES AND TOWNS OF OVERNIGHT STAY FOR LONG DISTANCE TRUCK DRIVER, 1988

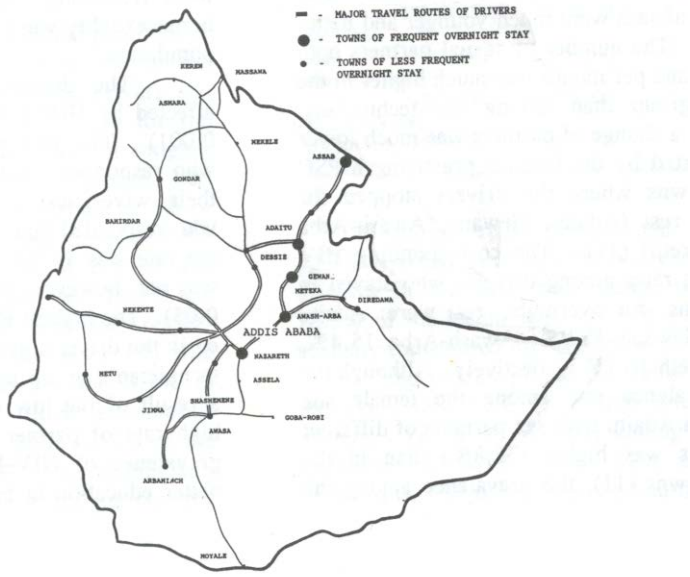


FIGURE 2. PREVALENCE RATES OF HIV-1 INFECTION AMONG DRIVERS AND TECHNICIANS BY AGE, ETHIOPIA, 1988

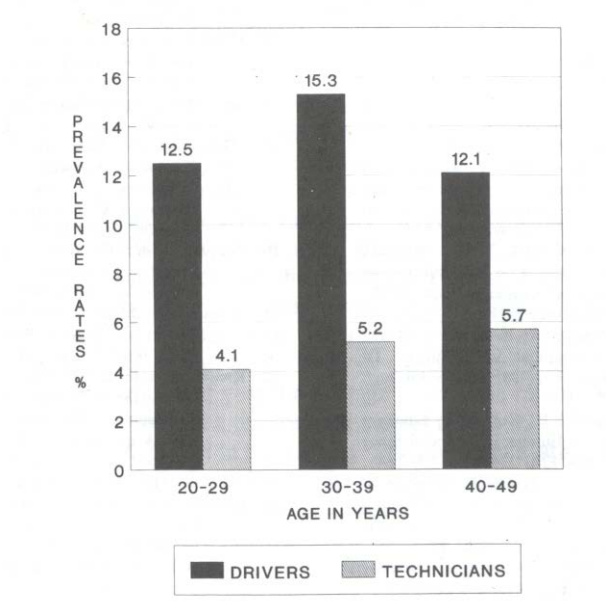
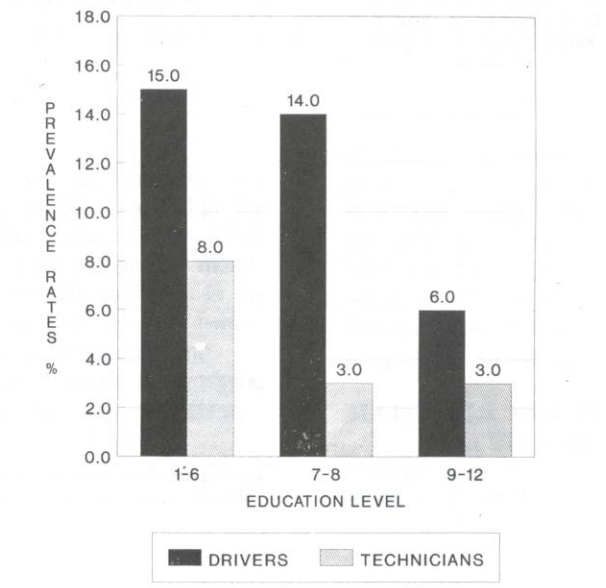


FIGURE 3. HIV PREVALENCE RATES AND EDUCATION LEVEL OF DRIVERS AND TECHNICIANS ETHIOPIA, 1988



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