

Prevalence of HIV Infection and Sexual Practices Among long Distance Truck Drivers

ORIGINAL

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Abstract

Objective: To analyze the prevalence of the *Human immunodeficiency virus (HIV)* and sexual practices of truck drivers who travel through a capital of the Northeast.

Methods: Cross-sectional study carried out from May to September 2013 with 384 truck drivers. Data were collected through application of forms and a rapid test with blood collection for detection of viral antibodies. Descriptive analyses consisted in frequency distribution and central tendency measures. To verify the predictive factors of multiple sexual partners, the Odds Ratio with statistical significance set at $p < 0.05$.

Results: It was observed that all respondents were male and aged between 31 and 50 years. The identified risk factors were: low education (50%); alcohol use (69.5%); multiple sexual partners (50.3%); lack of use or sporadic use of condoms (56.3%). The HIV prevalence detected among truck drivers was 0.8%.

Conclusion: In spite of the vulnerability of truck drivers to virus infection, with exposure to several risk factors, the prevalence of the virus was low. This prevalence was associated to risk factors present in the routine of truck drivers indicate vulnerability to HIV infection, making these people to be exposed to contamination, as well as contributing to dissemination of this virus among the general population.

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Keywords

HIV; Risk factors; Vulnerability; Prevalence; Truck drivers.

Introduction

A decrease in HIV/AIDS mortality rate has been observed in the last ten years in Brazil; from six deaths per 100,000 inhabitants in 2005 the rate dropped to 5.7 in 2014, representing a decrease of 5%. These numbers seem insignificant at first glance, but they are extremely important because several lives have been spared by public health education policies implemented [1].

Studies on male sexual behavior and vulnerability to HIV/AIDS have gradually increased and portray the exposure to a given situation [2]. It is observed that men have greater vulnerability because of the lifestyle they often adopt. Sexuality is seen as a complex and multifaceted phenomenon that incorporates cultural, historical, biological and political aspects that cross and build the experience of individuals before society[3].

Truck drivers represent one of the most vulnerable categories to HIV infection. Due to work, these people remain long periods away from home, far from family and partners. Because of the contingencies of their life style, truck drivers adopt practices associated with risk of Sexually Transmitted Infections (STI). These practices, in turn, may be related to cultural reasons, typical of the male nature, such as the feeling of being strong and immune to diseases; being unable to refuse women, because men have more need for sex than women and that desire is uncontrollable [4].

Long-distance truck drivers have problems with the intense pace of work assigned to them, including long journeys. This situation causes great physical, mental and emotional stress. These factors affect their health, causing various forms of harm to the body and to their quality of life [7].

Considering the difficulty of access of this population to health services due to constant displacement, truck drivers can contribute to the AIDS epidemic and other sexually transmitted infections because they are continuously traveling for several cities or countries and exposing the general popu-

lation to HIV. Thus, it is important to identify social and sexual practices of truck drivers and their HIV status. Therefore, the aim of this study is to analyze the prevalence of HIV infection and sexual practices of truck drivers who travel through a capital city in the Northeast of Brazil.

Methods

Cross-sectional study developed through an epidemiological survey and rapid testing for HIV. The field research was carried out at a gas station in Teresina, the capital of Piauí, because this is the place chosen for rest and overnight by the majority of truck drivers who pass through this capital [9].

With respect to the calculation of the sample size, considering the absence of previous studies indicating the HIV prevalence among truck drivers, a proportion of 50% [4] was taken as basis, as well as a sampling tolerable error of 5% and a confidence level of 95%. Assuming a simple random sample, a total sample of 384 truck drivers was obtained by the following equation: $n = Z^2 \cdot (p \cdot q) / e^2$, where n = the sample size, Z = confidence level, p = presumed prevalence, and $q = p-1$, e = tolerable error. The selection of this population took place through accidental sampling. This was included individuals that were successively arriving in the gas station, until the sample number was complete [9].

Data were collected from May to September/2013 by the researcher in charge along with participating researchers who underwent prior training. They attended the study site, alternating in the morning and afternoon shifts. Data collection was performed by using two techniques: first, interviews with the aid of a pre-tested form composed of questions addressing socio-demographic and work characteristics, knowledge about HIV transmission and sexual practices. Subjects were invited to participate and informed on the theme and objectives of the study. On that occasion, an Informed Consent form used by the National STI/AIDS Program was presented.

Thereafter, blood collection was carried out with the purpose of detecting anti-HIV antibodies for HIV infection diagnosis. For this, rapid tests that detect anti-HIV-1 antibodies were applied, including the O group and HIV-2 antibodies, using methods recommended by the Ministry of Health. Tests were provided by the Ministry of Health upon request of the Health Secretariat of the State of Piauí (SESAPI), which supported the research. The author and the responsible researcher were members of the State Program of STD/AIDS and of the Monitoring Board of Health Care, respectively.

Tests were performed immediately after collection of blood samples. The mandatory sequential performance of two tests (TR1 and TR2) was adopted, and TR2 was carried out depending on the results of TR1. The methodologies used in this research were the *Rapid-check* and the HIV 1/2 Bio-Manguinhos Rapid Test. The implementation of both tests was made as recommended by the manufacturers.

Participants were told to wait for the results on the place, which was issued in up to fifteen minutes. In addition, pre-test counseling was conducted in order to inform about the procedures to be performed, the possible results and to ensure privacy and confidentiality. Post-test counseling was held to present the results, clarification of any doubts and in the case of positive results, explain about the treatment and make referrals to HIV/AIDS reference services in the state, Testing and Counseling Center (CTA) and Centre of Specialized Service in HIV/AIDS (SAE), or give guidance for searching the reference service in the place of origin.

Prior to the procedure, it was explained that a digital puncture is an invasive technique and there could be a slight discomfort due to the bite of the lancet. However, risks would be minimal, considering that the material used had been strictly sterilized and collectors were experienced nurses with puncture technique. Participants were informed about the right to refuse to participate in this time or in any other moment of the research.

Samples that were non-reagent in the rapid test 1 (TR1) were diagnosed as "HIV Non-Reagent Sample"; in turn, in the case of samples showing positive results, a second test (TR2) with a new sample was carried out. Reagent samples in TR1 and TR2 were diagnosed as "HIV Reagent Sample". Meanwhile, discordant samples such as reagent in TR1 and non-reagent in TR2, had unresolved result and, in this case, the participant was forwarded to the Central Laboratory (LACEN/PI) along with a field researcher to be subjected to other tests with different methodologies.

At the end, a report was issue in two copies (one for the researcher and the other for the participant) with the final interpretation of the results of the sample, defined as "HIV Reagent Sample" or "HIV Non-Reagent Sample" or "HIV unresolved Sample". In the first case, the respondent had the option to choose the reference services, CTA and SAE of Teresina to access information and free treatment or in the case the responded did not accept the indication, he was instructed to seek treatment where it was most convenient for him.

It is important to note that, following the recommendation of the Ministry of Health, all professionals involved in the process of blood collection and testing followed bio-security standards. Furthermore, material contaminated with chemical or biological agents were properly treated and/or disposed in proper containers containing a specific risk signaling.

After collection, the data were entered using the *Software Statistical Package for Social Science* version 19.0. Simple descriptive statistics (distribution of absolute frequencies, percentages and simple measures of central tendency) were computed [10]. To check the predictors of multiple sexual partnerships, odds ratio was applied (*odds ratio*). Statistical significance was set at $p < 0.05$ [11]. The most significant findings were presented in tables.

The research project was approved by the Research Ethics Committee of the Federal University of Piauí, under the CAAE: 0315.0.045.000-1 and

opinion nº 1,215. Participants were given the Informed Consent used by the National STD/AIDS Program, authorizing the realization of the rapid test for HIV. We met all requirements of the Resolution nº 466/12 of the National Health Council which approves regulatory guidelines and standards for research involving human subjects[12].

Results

A nearly homogeneous distribution of respondents in the age groups was observed, with prevalence of ages between 41 and 50 years, and all respondents were male. More than half were married or in common-law marriage, with children and residents in the Northeast.

Regarding work variables, truckers with 11 to 20 years in this occupation, 19.1 years on average, prevailed. As for personal income, the average was R\$ 4,055.00, with a significant discrepancy between the minimum (R\$ 900.00) and the maximum (R\$ 30,000.00) cited wages. Study participants were characterized by having low education; half of them had only attended elementary school. **(Table 1)**

Among the interviewed truck drivers, most claimed to be heterosexual and having multiple sexual

Table 1. Socio-demographic characterization of the study population. Teresina/PI, 2013 (n = 384).

Variables	n	%
Age group		
19 to 30	46	12.0
31 to 40	110	28.7
41 to 50	111	28.9
51 to 59	90	23.4
60 and older	27	7.0
\bar{x}	43.8	
\pm	10.7	
CI 95%	42.7-44.9	
Min-Max	19-75	
Gender		
Male	384	100.0

Variables	n	%
Level of education		
No schooling	04	1.4
Fundamental education	192	50.0
High school	175	45.6
Higher education	13	3.0
Marital situation		
Single/separated/widowed	119	31.0
Married/Common-law marriage	265	69.0
Children		
Yes	330	85.9
No	54	14.1
\bar{x}	2.6	
\pm	1.6	
CI 95%	2.3-2.8	
Min-Max	01-12	
Time in the profession		
01 to 05	48	12.5
06 to 10	78	20.3
11 to 20	119	31.0
21 to 30	80	20.8
31 to 58	59	15.4
\bar{x}	19.1	
\pm	10.9	
CI 95%	18.0-20.2	
Min-Max	01-58	
Personal Income (MW)		
< 4	148	38.5
4 – 7	143	37.2
8 – 15	86	22.4
> 15	07	1.9
\bar{x}	4.055	
\pm	3.317	
CI 95%	3.554-4.556	
Min-Max	900-30.000	
Average; \pm : Standard Deviation; CI: Confidence Interval.		

partners. Regarding the use of condoms during intercourse, only 43.7% reported always using it. Among those who said not to use condoms, the reasons cited to justify this were the fact of not liking to use it, and not always having a condom at hand. More than half of truck drivers who make use of drugs reported to use them before sex. **(Table 2)**

Table 2 Sample Distribution according to sexual practices. Teresina/PI, 2013.

Variables	n	%
Usual sex (n = 384)		
Only with women	372	96.9
No matter the gender	12	3.1
Only one sexual partner (n = 384)		
No	193	50.3
Yes	191	49.7
Selection of the sexual partner (n = 193)		
Yes	128	66.3
No	65	33.7
Use of condoms during sexual relations (n = 384)		
Always	168	43.7
Never	124	32.3
Sometimes	92	24.0
Reason for not using condoms (n = 216)		
The interviewee does not like it	105	48.6
The interviewee does not always have it at hand	35	16.2
The interviewee has sex with clean women	10	4.6
The interviewee believes in divine protection	02	1.0
Other reasons	64	29.6
Use of drugs before sex (n = 103)		
Yes	55	53.4
No	48	46.6

The large majority of study participants (98.2%) reported having information on HIV/AIDS. The main source of information was television. Interviewees said that transmission occurs through unprotected sexual intercourse, and then they also mentioned blood transfusions. As for having information on HIV/AIDS (**Table 3**), almost all they said yes, being the main source television and declared that transmission occurs through unprotected sexual intercourse, followed by blood transfer.

While seeking the factors that explain the multiple sexual partners of the truck drivers, there was a statistically significant association with marital status ($p < 0.01$), with drug use ($p < 0.01$), use of drinks before sex ($p < 0.01$), use of other drugs before sex, have information about HIV/AIDS (**Table 4**).

Table 3. Sample Distribution of the study according to information on HIV and its transmission. Teresina/PI, 2013.

Variables	n	%
Information on HIV/AIDS (n = 384)		
Yes	377	98.2
No	07	1.8
Source of information (n = 377) *		
TV	266	70.5
Health services	107	28.4
Reading	59	15.6
Other	168	44.6
Knowledge on HIV/AIDS means of transmission (n = 377)		
Yes	268	71.1
No	52	13.8
In part	57	15.1
HIV/AIDS transmission (n = 325) *		
Unprotected sex	297	91.4
Blood	204	62.8
Hug	06	1.8
Vertical	05	1.5
Others	63	19.4

*: Multiple response.

Table 4. Predictors of multiple sexual partners in the sample. Teresina/PI, 2013.

Variables	Multiple sexual partners				ORna*	p value**
	Yes		No			
	n	(%)	n	(%)		
Marital situation						
Married/ common-law marriage	111	41.9	154	58.1	0.30	<0.01
Single/ separated/ widowed	82	68.9	37	31.1		
Children						
Yes	160	48.5	170	51.5	0.50	0.08
No	33	61.1	21	38.9		
Use of alcohol						
Yes	139	52.1	128	47.9	1.20	0.28
No	54	46.2	63	53.8		
Drug use						
Yes	65	63.1	38	36.9	2.00	<0.01
No	128	45.6	153	54.4		

Variables	Multiple sexual partners				ORna*	p value**
	Yes		No			
	n	(%)	n	(%)		
Use of drinks before sex						
Yes	67	44.1	85	55.9	0.40	<0.01
No	73	63.5	42	36.5		
Use of other drugs before sex						
Yes	40	72.7	15	27.3		0.04
No	26	54.2	22	45.8		
Information on HIV/AIDS						
No	06	85.7	01	14.3	6.00	0.05
Yes	187	49.6	190	50.4		
Knowledge on how HIV is transmitted						
No/in part	49	45.0	60	55.0	0.70	0.23
Yes	141	52.6	127	47.4		

The prevalence of HIV/AIDS in the sample of 384 truck drivers was 0.8% (95% CI = 0-1.8), equivalent to 3 men (Table 5).

Table 5. Distribution of the sample according to detection of anti-HIV antibodies. Teresina/PI, 2013.

Reagent p / HIV / AIDS	N	%	95% CI
Yes	03	0.8	0-1.8
No	381	99.2	98.6 to 99.4

Discussion

Other studies with truck drivers have shown similar socio-demographic characteristics of those found in the present study. All truck drivers were men. This profession has a mostly male profile because it demands not only physical and mental effort, besides the need to be away from the family, what is usually not part of the feminine universe, which is more focused on the care of children and family [10].

Almost half of the population had completed high school, differing from other research studies [8-12] whose prevalent level of education was up to four years of schooling. As for income, it was also observed that this was higher than that found

in the abovementioned studies; the present study found salaries ranging from three to six minimum wages, the large majority above six wages. Possibly, higher level of education influences the moment of bargaining salary.

A study conducted in Minas Gerais with 109 truck drivers reported that the minimum experience in the profession was one year and the maximum, 45 years, with a maximum time of 40 days away from home, 74 drivers were married. This information is consistent with the present research which shows that 69% truckers were married. As for the professional exercise, the time in the profession varied between 11 and 20 years [11].

Studies show a predominantly male population of truck drivers, young adults, with a few years of study. These are features associated with the HIV-infected population. A total of 608,230 cases of AIDS, among which 397,662 (65.4%) are males, have been reported in Brazil from 1980 to 2011 [1]. Although the male/female ratio in the prevalence of HIV/AIDS has dropped in recent years, it is still predominant among the male population. This can be explained by cultural variables and gender stereotypes of our patriarchal society in which beliefs and values around maleness persist. Men do not recognize they have health needs; they adopt an illusory thinking that rejects illness instead. Furthermore, health care services have for a long time directed less attention to the male population [2].

One aspect worth mentioning is the use of alcohol and other drugs among truck drivers. As the present research, other researches have shown that the use of alcoholic beverages among truck drivers is a common practice, followed by marijuana and "rivet" (mixture of caffeine, alcohol and amphetamines), and other drugs to a lesser extent: cocaine, tranquilizers, glue, LSD and crack [7-13].

Besides the contact with prostitution, alcohol and other drugs, truck drivers have difficulty to access health services. This means that they miss essential interventions for their health. This diffi-

culty of access is worsened by the frequent displacement of this population, and by the fact of traveling through cities using predetermined routes, usually the edges of urban centers, hardly close to health services [13].

With respect to sexual practices of truck drivers that present risk of sexually transmitted infections, having multiple partners stand out. This study showed lower proportions (50.3%) when compared to another study⁴ that found a proportion of 90%. In addition to multiple partnerships, another major object of concern is the inconsistent use of condoms during sexual intercourse, indicating high vulnerability of truckers to infections.

Condom use is linked to the type of partner. Condom is rarely used with regular partners (6.0%). In turn, in the case of sex with casual partners, condom use was more frequent. This fact demonstrates the vulnerability to which primary partners are subjected in relation to STIs. Understanding the lack of probability of HIV infection was reported by approximately 66% of truck drivers surveyed in a study of Minas Gerais who did not use to choose fixed sexual partners for their sexual practices [7].

Truck drivers belong to a labor class that has risk factors for HIV infection, since they have occasional sex during work trips and most often do not use condoms. Usually, these workers have access to information about HIV prevention, but their use of condom depends on the choice of sexual partner [8].

It is important to consider that drug use before sex was confirmed by 13.5% of respondents. This factor can make them more vulnerable to infection because, as we know, neuro-stimulators can cause, among other symptoms, hyper-sexuality, and impulsive and dangerous behavior [7]. The belief that only men seek extramarital relationships still prevails. This was one finding in this study, where 61.5% of truck drivers who did not use condoms in their sexual relations or used only occasionally were married or lived a common-law marriage

[14]. It is also notable the fact that 16.2% stated they do not use condoms because these are not always available.

Data contradicting this study were found in truck drivers of Campinas-SP, which were aware of the importance of using condom in sexual practices, with among 94% of respondents, only 6% reported never using condoms during sex [7]. Some truckers attribute the failure to use condoms to the fact of having regular partners, because condom implies the blame of infidelity, prostitution, promiscuity and extramarital sexual practices. However, not using condoms with regular partners is used as a way of showing loyalty and female submission in sex [8].

A significant majority of the truckers in the study claimed to have information about HIV/AIDS, including the means of transmission. However, information alone is not enough for the practice of consistent use of condoms because there are many contingencies which go from the justification that condom prevents pleasure, as cited by some respondents, to the very lack of it [8].

The prevalence of HIV infection in this study was 0.8%. It is noteworthy that infected individuals were unaware of their HIV reagent status. Higher prevalence was found in another study [15] with international truck drivers in Azerbaijan, where rapid tests to diagnose HIV infection were also used.

Fifty eight (1.54%) out of the 3.763 participants had reactive rapid test results for HIV. Projects and actions directed to this population become increasingly relevant to reduce the risk of contracting and/or spreading HIV infection, among other STIs.

Bias may be present in the information collected in this research, regarding the self-reported answers and especially with respect to the variables related to cultural prejudice, such as multiple sexual partners and same-sex partners. This may be also the case when the response could imply breaking current laws such as the use of alcohol and other drugs during work. Thus, some answers were pos-

sible affected by fear of moral judgments and repression. However, these aspects do not invalidate the relevance of the present study.

Conclusion

The prevalence of HIV/AIDS among truck drivers was low (0.8%) despite the risk factors to which they were exposed, namely: multiple sexual partners, non-use or occasional use of condoms and use of alcohol and other drugs before sex.

This study demonstrated the vulnerability of truckers to HIV infection, calling attention to the issue of risk of spread of the infection among the general population. This emphasizes the importance of knowing more features and sexual behaviors of this population.

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