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Research Article

Knowledge on HIV/AIDS and Sexual Behaviours among Long-distance Truck Drivers at Kazungula Weigh Bridge Terminal, Chobe District, Botswana

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ABSTRACT

Long-distance truck drivers (LDTDs) have a higher rate of HIV infection than the general population. This is attributed to their high mobility and their being out of their homes for protracted periods. LDTDs stop for a day or more at Kazungula weigh bridge terminal, making it a lucrative rendezvous for commercial sex work. Risky sexual behaviour predisposes LDTDs to contracting and spreading HIV. The aim of this study is to determine the level of knowledge of HIV/AIDS and the sexual behaviour of the LDTDs at Kazungula weigh bridge terminal. Quantitative, cross-sectional-descriptive methods were employed to study the LDTDs at Kazungula weigh bridge terminal in the Chobe District. A simple random sampling technique was used to produce a sample of 399 truck drivers who consented to participate in the study. A questionnaire (written in English and translated into Setswana) was used to collect socio- demographic data and establish the knowledge of HIV/AIDS and sexual behaviours of LDTDs. A total of 399 LDTDs participated in this study. The level of knowledge about HIV/AIDS was high among the LDTDs, but regardless of this, LDTDs engaged in sexually risky behaviours. All participants (100%) had heard about HIV/AIDS and the common sources of information were the media (65.9%) and school (62.9%). Most of the LDTDs (96.99%) knew that AIDS is caused by HIV, and the level of education was not a predictor of the level of knowledge of HIV/AIDS among the LDTDs, with a correlation of 0.597 (not significant). About 12.03% believed that HIV/AIDS is caused by witchcraft and 23.31% did not agree that HIV/AIDS has no cure. This has an association with the level of education ($P < 0.05$). The results revealed that 90.23% of participants agreed that HIV can be prevented by using a condom ($P < 0.021$). Despite the high level of knowledge about HIV/AIDS found in this study, LDTDs still engaged in sexually risky behaviours such as paying to have sex with commercial sex workers-CSW (56.89%) and having sex with commercial sex workers without using a condom (27.07%). The study shows that LDTDs engage in sexually risky behaviours despite having a high level of knowledge about HIV/AIDS. To abate the problem of new infections and re-infections with HIV in this group and in the general population, effort needs to be geared towards LDTDs behaviour change. It is envisaged that such behavioural change would promote the use of condoms particularly with CSWs and casual partners.

Keywords: Long-distance truck drivers, HIV/AIDS, sexual behaviors, knowledge of HIV/AIDS

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INTRODUCTION

The HIV epidemic remains a challenge in Botswana and the government is making numerous efforts to curb this scourge. Botswana has the third highest prevalence of HIV in the world, with about 360 000 infected people in a population of only 2,024,904. Hence, the need to double the effort to prevent new infections (Kandala *et al.*, 2012; UNAIDS, 2017; Statistics Botswana, 2011).

Long-distance truck drivers (LDTDs) are a bridge population in the transmission of HIV, with studies indicating their great potential to use the services of high-risk groups like commercial sex workers (CSW), resulting not only in high HIV prevalence in this group but also in passing it on to the general population (Singh and Joshi, 2012). Therefore, there is a dire need to mitigate the situation and prevent new infections. Condom use remains the second most viable means by which HIV transmission can be prevented, after

abstinence. Despite other preventive efforts embarked upon by the Botswana government to deter the development of new infections through programmes such as Safe Male Circumcision (SMC), which was introduced in 2009, and recently the Treat All Strategy, which was launched in June 2016, and which envisages treating all HIV cases, irrespective of their CD4 count, the use of these programmes can bear fruit only where there is a high level of knowledge about HIV/AIDS and a positive change in sexual behaviours. Hence, the need for this study, the purposes of which are to establish the extent of LDTDs' knowledge of HIV/AIDS and the nature of their sexual behaviours. The study of the extent of knowledge about HIV/AIDS and sexual behaviours of LDTDs in Africa and other countries have been well documented, but little research has been conducted in this area of Botswana. An understanding of the extent of LDTDs' knowledge about HIV/AIDS and associated sexual behaviours could serve as a point of departure and a strong foundation upon which preventive initiatives could be built for this group of people in the Chobe District Health Management Team (DHMT).

HIV prevalence is high among LDTDs, accounting for 56% of the truckers in Southern Africa. This is due to their risky sexual behaviours such as having multiple concurrent partners and engaging in sex with CSWs, and their inadequate knowledge of HIV/AIDS and its transmission (Matovu and Ssebadduka, 2013; Himmich *et al*, 2015). LDTDs stop for a day or more at Kazungula weigh bridge terminal, making it a lucrative rendezvous for commercial sex work. The literature points out that an influx of mobile workers such as LDTDs to a terminal or trading centre increases the chances spreading HIV (Deane *et al*, 2010). Inadequate knowledge of HIV/AIDS results in inconsistencies in condom use, as alluded to in some studies conducted in this group population. A study in Nigeria revealed that 50% of truck drivers thought HIV/AIDS was curable, and some lacked knowledge of the cause of HIV/AIDS and believed in myths such as witchcraft and God's punishment, while others believed that HIV was caused by demons and evil spirits (Tehrani and Afzali, 2008; Aniebue and Aniebue, 2011). Knowledge about HIV/AIDS is vital, as it can help reduce the myths and misconceptions about HIV/AIDS among LDTDs. A lack of sufficient knowledge about HIV is one of the key issues that can impede preventive efforts. Hence, there is a need for this study to ascertain the level of knowledge and the sexual behaviours of LDTDs to establish the magnitude of the problem and inform interventions by the Chobe DHMT.

Global HIV/AIDS prevalence is estimated at 36.7 million, and it is a public health concern (UNAIDS, 2017). LDTDs' sexual behaviours are implicated in acquiring and spreading of HIV/AIDS in many countries of the African continent such as South Africa, Nigeria, and Botswana. The relevant literature shows that truck drivers have negative attitudes towards condom use and indulge in risky sexually encounters, which predisposes them to acquiring HIV and sexual transmitted infections (STIs) (Matovu and Ssebadduka, 2013). Their dislike for condom use has negative implications for their sexual behaviours. Studies have found that up to 31% of non-condom use among LDTDs during sexual encounters and an 18.4% disinclination to use condoms, with some LDTDs

blaming condoms for destroying the mood for sex (Matovu and Ssebadduka 2013).

LDTDs have one of the highest rates of HIV infection amongst the general population, because they are highly mobile. Mobility is one of the key drivers of the HIV epidemic, as it aids transmission through LDTDs perpetrating risky sexual behaviours than the citizens of the countries through which they travel, who are found to have positive sexual behaviours (Nasir *et al*, 2015). The risk becomes greater with the longer time they stay away from home in migratory populations. Study by Delany-Moretlwe *et al* (2014) found that being away from home for longer times has a strong association with an increase in HIV infection, and Nasir *et al* (2015) concur with this finding and suggest that this association is due to LDTDs paying to have sex with CSWs. The HIV/AIDS pandemic is a health concern causing serious predicaments such as increased expenditure in efforts to curb this scourge. The greatest burden of HIV/AIDS is still borne by sub-Saharan Africa, which houses 63% of the total world population living with HIV, although sub-Saharan Africa is home to only 10% of the world's population (Aniebue and Aniebue, 2011; Chen *et al*, 2007; UNAIDS, 2016).

A very vital aspect to consider about LDTDs' sexual behaviors is their knowledge of HIV/AIDS. In some survey studies conducted among truck drivers in Morocco and Iran, the level of knowledge about HIV/AIDS was low, and HIV knowledge index was low among semiliterate (Himmich *et al*, 2015; Tehrani and Afzali, 2008). A study by Nasir *et al*, (2015) shows that 60% of LDTDs had knowledge about HIV, meaning that a significant number of them (40%) did not have knowledge about HIV/AIDS, but some studies show high levels of knowledge about HIV/AIDS. For instance, in a study conducted in Pradesh, India, 81.8% were aware of the fact that HIV can be transmitted through heterosexual activity, and 95% knew that condom use can reduce HIV transmission. However, in some studies the level of knowledge among LDTDs was as high as 88.8% on knowledge of unprotected sex as a mode of transmission of HIV, and 78.4% of knowledge that using condoms can prevent HIV transmission (Aniebue and Aniebue, 2009). Knowledge about HIV/AIDS and sexual behaviour among LDTD in this area of Botswana is very scarce, hence the motivation to conduct this current study.

MATERIALS AND METHODS

Study design and approach: The study employed a quantitative and cross-sectional/descriptive design. It was cross-sectional/ descriptive so that data could be collected at one point in time due to constraints in time and resources while yet giving some insight into the sexual behaviours of long-distance truck drivers. The collection of data was performed through the administration of questionnaires.

Study setting: The study was conducted at Kazungula weigh bridge terminal in the Chobe District, Botswana. This is a place where all the trucks entering the Chobe District stop for a day or more, queuing to have their trucks weighed to pay the required customs duty before proceeding to their various destinations. The majority of LDTDs in this study were engaged in cross-border trade as exporters and importers from

South Africa up to Central Africa via Botswana through the Kazungula border post. This truck terminal receives about 30, 000 long-distance trucks a month.

Study population: The study population comprised all LDTDs available at Kazungula weigh bridge terminal, both local and international drivers, who were in transit and had stopped at this terminal. Their occupation was that of driving heavy trucks, and they had been away from home for a day or more.

Sampling technique: The participants were recruited from among all consenting LDTDs at Kazungula weigh bridge terminal during data collection. A simple random sampling technique was used to get the sample. A sample frame was drawn from all the LDTDs at Kazungula weigh bridge terminal who registered for services at the weigh bridge and consented to participate in the study. Random sampling was employed in the selection of the sample. The researchers conducted a lottery in which potential participants picked up a piece of paper with an "A" written on it to be included in the sample, and with a "B" on it for non-inclusion in the study. The lottery system was conducted to acquire research participants until the desired sample size was reached.

Sample size: About 30, 000 long-distance trucks use Kazungula weigh bridge services in a month, and those that had stopped at this terminal were the ones from whom the sample was drawn. The sample size for this study was 380 participants. It was calculated using the Raosoft sample size calculator at confidence level of 95% and a 5% accepted margin of error at a response distribution of 50%. A 5% buffer of participants was included in the sample as a contingency and to improve the extrapolation of the results, making the sample size 399.

Inclusion criteria: Only truck drivers who understood either English or Setswana language were included in the study. The LDTDs included in the study were those who had truck driving as their occupation, who drove heavy trucks with three or more axles, and who had registered for services at Kazungula weigh bridge terminal. Trucks that were a day or more away from home and had stopped at Kazungula weigh-bridge terminal were included. Only those truck drivers who had consented to participate in the study were present at the time of data collection.

Exclusion criteria: All truck drivers who worked within Kazungula village or its vicinity and who had not been away from their homes for a day, or more were excluded. All LDTDs who did not understand either English or Setswana or did not consent to participate in the study were also excluded from the study.

Data collection: Validated questionnaire was used to collect data. These were administered by the researchers, using adapted validated questionnaire from previous study (Madiba and Mokgatle, 2015). The questionnaire composed of closed-ended questions that elicited demographic data, and questions about the participants' knowledge about HIV/AIDS and their

sexual behaviours. The researchers and research assistant received training on data collection. All the available LDTDs were gathered in the weigh bridge offices in collaboration with the weigh bridge management to receive information on the study. The researchers and research assistant administered the questionnaires to those who consented to participate, and the exercise took about 30 minutes to complete per participant. The data collection continued for about seven months.

Approval to conduct the study was obtained from Sefako Makgatho Health Sciences University (SMU) Research Ethical Clearance Committee (SMUREC) as well as the Ministry of Health and Wellness (MoHW), Botswana; and the two approvals were used to obtain permission of the Ministry of Transport and Communication (MTC) - Roads Department to use the weigh bridge facilities during data collection. Written consent was sought and obtained from all participants. The questionnaire was administered, and all the eligible participants were drawn from among the LDTDs through simple random sampling by the researchers and assistant. All the participants (399) completed the questionnaire.

The validity and reliability of the data collection tool: The validity of an instrument is the degree to which it can measure the variable it is intended to measure, and reliability is the level of accurateness of the instrument to measure the desired variable (Polit et al, 2001). For this study, the data collection tool used was a questionnaire using a previously used and validated questionnaire by Madiba and Mokgatle (2015) to ensure validity. The questions included both knowledge and sexual behaviour questions, and vital aspects that influence on both knowledge and behavior, such as demographic data e.g. the participants' levels of education and religious affiliations. The questionnaire was made available in both English and Setswana.

Ethical considerations: The study commenced after ethical approval was obtained from the Sefako Makgatho Health Sciences University Research Ethical Clearance Committee (SMUREC). This approval aided in obtaining permission from the Ministry of Health (MoHW). The letter of clearance from the SMUREC and the letter from the MoHW granting permission for the study to go ahead with the study were used to obtain permission from the weigh bridge management (MTC- Roads Department) to conduct the data collection at their facility. The consent forms were made available to the participants who were willing to take part in the study, consented participants signed the consent form, written in English and translated into Setswana. All data collected from the participants were treated confidentially.

RESULTS

Description of the survey sample: Three hundred and ninety-nine (399) LDTDs took part in this study. Most of them (327) were international drivers, while only 72 of them were local drivers. Their ages ranged from 23 years to 63 years, with a mean age of 39.7 years (Table 1a). The minimum age that a participant had started long-distance driving was at the age of 19 years and the maximum was 45 years. Most of the participants (43.36%; n=173) started long-distance truck driving between the ages of 25 and 29 years (Table 1b). The

maximum length of time that a participant had spent on truck driving was 33 years, while the minimum was 1 year. Most of the participants (81.45%; n=325) were in age category 3, which is >30 years, followed by category 2 (17.54%; n=70), 25 to 30 years. Those less than 25 years old accounted for only 1% (n=4) of the total number of participants. The greater proportion of LDTDs were affiliated to a religion (n=297), with Christianity accounting for most of it (n=234), followed

by Islam with 13, Buddhism with 3 participants while 77 had no religious affiliation (Table 1a).

Figure 1 shows that the ages of the participants in the research were normally distributed, with a bell-shaped frequency indicating no skew. Figure 2 depicts the ages when LDTDs began truck driving. The graph shows a positive skew, and the mean age is skewed to the right. Figure 3 above shows that, the mass of the distribution for the years spent as a LDTD is concentrated on the left, and the graph is right-skewed.

Table 1a:
Socio-demographic profile of participants

Variable	Obs.	Mean	Std. Dev.	Min	Max
○ Age in years	399	39.70927	8.887103	23	63
○ Age starting LDTD	399	28.98747	5.109096	19	45
○ Years in LDTD industry	399	10.36842	6.808737	1	33

Religion	Buddhism	Christianity	Islam	None	Total
Local	0	47	0	25	72
International	3	234	13	77	327
○ Total	3	281	13	102	399

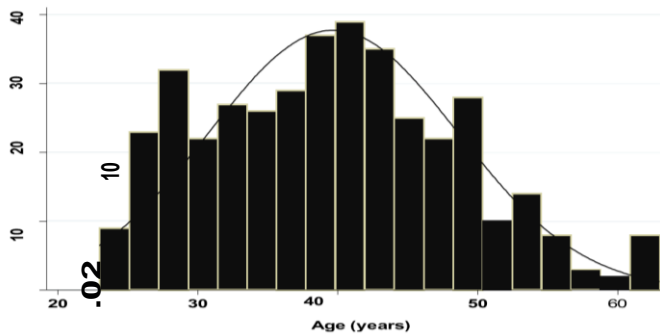


Figure 1:
Ages of Participants

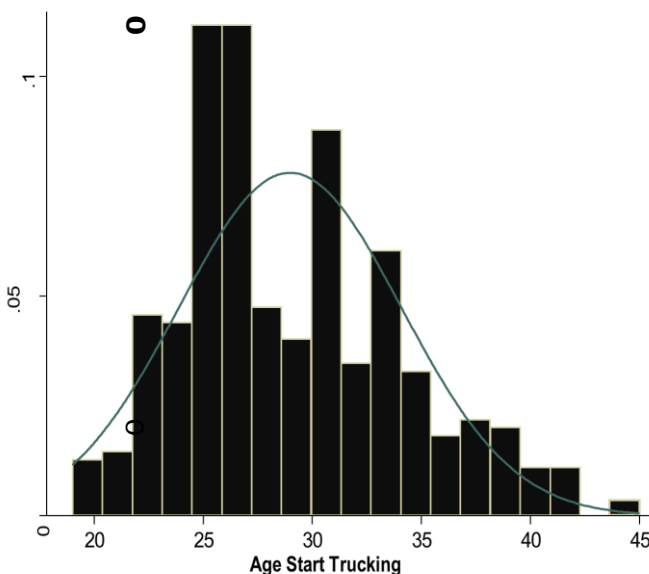


Figure 2:
Age when participants joined LDTD industry

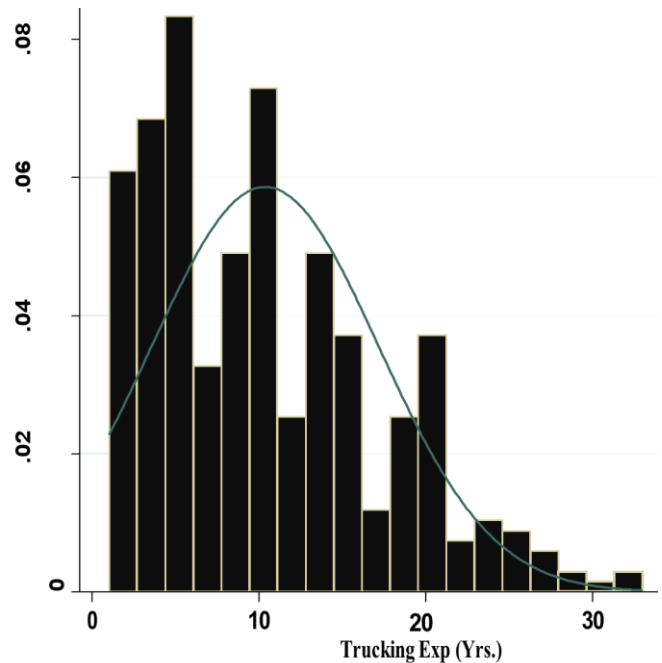


Figure 3:
Number of years as a LDTD

Table 1b above shows that 6.02% (n=24) of the participants did not have a formal education and of those who had a formal education, 63.41% (n=253) had secondary education, with the remaining 30.58% consisting of those with primary and tertiary education at 15.54% and 15.04% respectively.

Figure 4 below shows that most of the participants were married (65.91%; n=263), while 22.31% (n=89) had steady girlfriends. Few of the participants had no sexual relationship (2.26%; n=9) and those with casual relationships accounted for 9.52% of the cohort.

Living arrangement and sexual behaviours: Of a total of 263 who were married, 56 were at the current time living alone. A total of 110 LDTDs were living alone while 54 were staying with their girlfriends (Table 2).

Table 1b:
Demographic characteristics of participants

	Frequency		Percentage
Age category	<25	4	1.00
	25-30	70	17.54
	>30	325	81.45
	Total	399	100.00
Start of trucking (in years)	<25	62	15.54
	25-30	199	49.87
	>30	138	34.59
	Total	399	100.00
Duration in trucking industry (in years)	≤5	128	32.08
	6-10	95	23.81
	>10	176	44.11
	Total	399	100.00
Relationship status	Casual girlfriend	38	9.52
	Steady girlfriend	89	22.31
	Married	263	65.91
	No relationship	9	2.26
Level of education	No formal education	24	6.02
	Primary	62	15.54
	Secondary	253	63.41
	Tertiary	60	15.04
	Total	399	100.00

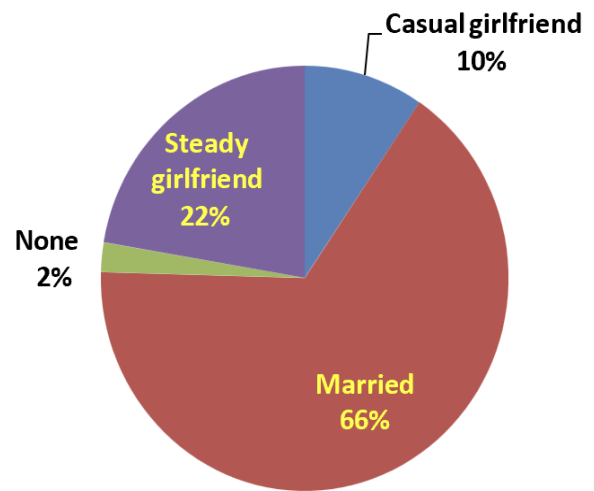


Figure 4:
Relationship Status of participants

A bivariate analysis in Table 3 below shows that of the 65.91% (n=263) who were married, only 28.07% had no girlfriends, 21.05% had one girlfriend, 8.82% had two girlfriends and 8.27% had more than two girlfriends (P-Value=0.000).

Table 4 below shows that 73 of the participants had more than 2 girlfriends, while 123 and 66 participants respectively had one or two girlfriends. Of a total of 110 participants who were living alone, 35 of them had more than two sexual partners and only 20 had no concurrent sexual partners. Of the total of 399 LDTDs who participated in the study, 137 had no sexual partners and the rest had multiple concurrent sexual partners.

Table 3:
Relationship status and number of girl friends

Relationship status	Number of Girlfriends					Total
	None	One	Two	More than two	two	
None	3	2	0	4		9
	0.75	0.50	0.00	1.00		2.26
Casual girlfriend	4	4	8	22		38
	1.00	1.00	2.01	5.51		9.52
Steady girlfriend	18	33	24	14		89
	4.51	8.27	6.02	3.51		22.31
Married	112	84	34	33		263
	28.07	21.05	8.52	8.27		65.91
Total	137	123	66	73		399
	34.34	30.83	16.54	18.30		100

Pearson's $\chi^2 (9) = 74.0631$; $Pr = 0.000$

Table 4:
Living arrangements and the number of girlfriends

Living arrangement	Number of Girlfriends				Total
	None	One	Two	More than two	
Alone	20	29	26	35	110
With girlfriend	16	18	13	7	54
With parents/family	10	9	8	12	39
With wife	91	67	19	196	263
Total	137	123	66	73	399

Table 5:

Association between number of girlfriends and being a LDTD

International/local category	Number of Girlfriends				Total
	None	One	Two	More than two	
Local	33	22	4	14	73
	2.5	0.0	5.4	0.0	8.0
	24.09	17.89	6.06	19.18	18.30
International	104	101	62	59	326
	0.6	0.0	1.2	0.0	1.8
	75.91	82.11	93.94	80.82	81.70
Total	137	123	66	73	399
	3.1	0.0	6.6	0.0	9.7
	100.00	100.00	100.00	100.00	100.00

Pearson's $\chi^2(3) = 9.7357$

Pr = 0.021 Fisher's exact test = 0.013

Association between number of girlfriends and being a LDTD: Table 5 shows that of the 73 LDTDs who had more than two girlfriends, 80.82% (n=59) were international drivers, and local drivers accounted for the remaining 19.18% (n=14). Out of the 399 LDTDs who took part in the study, only 137 had no extra relationships other than those they had as casual, steady or marriage relationships. The survey further shows that 82.11% (n=101) of n=123 and 93.94% (n=62) of n=66 of the international LDTDs had one or two girlfriends respectively, compared to 17.89% (n=22) of n=123 and 6.06% (n=4) of n=66 for local drivers. A chi-squared test was performed, and the results favored the alternative hypothesis that there is an association between the number of girlfriends and being a LDTD. This is significant (P<0.05).

Table 6:

Source of information about HIV/AIDS

Have you ever heard about HIV/AIDS	Response		%	Frequency
	Yes	No		
Source of information	Media	Yes	65.91	263
	Church	Yes	20.30	81
	School	Yes	62.91	251
	Clinic	Yes	53.63	214
	Other	Yes	5.01	20

Knowledge about HIV/AIDS: All the participants had heard about HIV/AIDS (100%; n=399). The leading source of information about HIV/AIDS was the media at 65.9% (n=263), followed by school at 62.9% (n=251). Only 20% (n=81) had heard of HIV/AIDS at church. 53.6% (n=214) had heard of it from a clinic, while 5.01% (n=20) had heard of it through other means not specified (Table 6).

Table 7 above shows a univariate analysis, and the overall results of the study show that LDTDs had a high level of knowledge about HIV/AIDS with scores going up to 96.99% (n=387) on the knowledge that HIV causes AIDS. Only 12.03% of LDTDs believed that witchcraft can cause HIV/AIDS, and most of them knew that there is currently no cure for HIV (76.69%; n=306). A high proportion of LDTDs (96.99%; n=387) knew that having multiple partners increases the chance of getting HIV, and that using condoms during coitus can prevent HIV

transmission (90.23%; n=360). The percentage scores for knowledge about HIV/AIDS were above 75%.

Table 8a below shows a bivariate analysis that was conducted to establish the association between the level of education and knowledge that HIV causes AIDS. Of the 96.99% (n=387)

Table 7:

LDTDs' knowledge about HIV/AIDS

Question	Response	%	Frequency
HIV is the virus that causes AIDS	True	96.99	387
HIV/AIDS is caused by witchcraft	False	87.97	351
There is no cure for HIV/AIDS currently	True	76.69	306
Having a sexually transmitted disease can increase a person's risk of getting HIV	True	95.24	380
A healthy-looking person can have HIV	True	93.98	375
Having multiple sexual partners increases the risk of getting HIV	True	96.99	387
HIV can be transmitted by sexual intercourse with an infected person	True	94.99	379
HIV can be prevented by using a condom during sexual intercourse	True	90.23	360
HIV can be transmitted by sharing needles or syringes	True	91.98	367
HIV can be transmitted by blood transfusion	True	93.73	374
HIV can be transmitted by sharing a glass or cup with an infected person	False	90.98	363
HIV can be transmitted by sharing a toilet with an HIV infected person	False	91.73	366
Infection with HIV can be prevented by washing one's genitals with antiseptics or soap after sexual intercourse with an infected person	False	78.20	312

Table 8a:

Bivariate analysis: Level of Education and Knowledge of HIV/AIDS

Knowledge	Response	Per cent/Frequency				P-Value
		Non-formal	Primary	Secondary	Tertiary	
HI virus causes AIDS	True	91.67(22)	91.94(57)	98.02(248)	100(60)	0.000
Washing genitals with soap after sex	False	50.00(12)	45.16(28)	85.38(216)	93.33(56)	0.000
HIV/AIDS is caused by witchcraft	False	75.00(18)	61.29(38)	94.07(238)	95.00(57)	0.000
Currently there is no cure for HIV/AIDS	True	50.00(12)	48.39(30)	83.40(211)	88.33(53)	0.000
A healthy-looking person can have HIV	True	87.50(21)	87.10(54)	96.44(244)	93.33(56)	0.021
HIV can be prevented by using a condom	True	87.50(21)	74.19(46)	92.89(235)	96.67(58)	0.000

Table 8b:

Bivariate analysis: Level of Education and Knowledge of HIV transmission

The following can transmit HIV	Response	Per cent/Frequency				P-Value
		Non-formal	Primary	Secondary	Tertiary	
Having a sexually transmitted disease	True	75(18)	90.32(56)	97.23(246)	100(60)	0.000
Sexual intercourse with a HIV-positive person	True	75(18)	93.55(58)	96.05(243)	100(60)	0.000
Sharing needles or syringes	True	83.33(20)	93.55(58)	90.91(230)	98.33(59)	0.072
Blood transfusion	True	79.17(19)	90.32(56)	96.05(243)	93.33(56)	0.007
Sharing a glass or cup with an HIV-positive person	False	75(18)	85.48(53)	91.70(232)	100(60)	0.001
Sharing a toilet with an HIV-positive person	False	79.17(19)	85.48(53)	92.49(234)	100(60)	0.003

Table 9:

LDTDs' sexual behaviours

Question	Response	Per cent	Frequency
I have at some point paid for sex with commercial sex workers in my long-distance travel with a truck	Agree	56.89	227
	Disagree	43.11	172
I have had sex with a commercial sex worker without using a condom	Agree	27.07	108
	Disagree	72.93	291
In the past 12 months I have paid for sex	Agree	34.09	136
	Disagree	65.91	263
I know where to get condoms when I need them	Agree	97.24	388
	Disagree	2.76	11
I feel confident in my ability to put a condom on myself	Agree	93.48	373
	Disagree	6.52	26
I feel confident I could remove and dispose of a condom after sexual intercourse	Agree	93.23	372
	Disagree	6.77	27
I feel confident I could purchase condoms without feeling embarrassed	Agree	90.48	361
	Disagree	9.52	38
I feel confident that I could go and get condoms from a public place without feeling embarrassed	Agree	91.48	365
	Disagree	8.52	34
I feel confident I could remember to carry a condom	Agree	93.23	372
	Disagree	6.77	27
I would not feel confident suggesting using condoms with a new partner because I would be afraid she would think I have a sexually transmitted disease	Agree	29.07	116
	Disagree	70.93	283
A condom creates doubt between sexual partners	Agree	37.59	150
	Disagree	51.38	205
	Not sure	11.03	44
How worried are you about getting HIV/AIDS?	Worried	75.94	303
	Not worried	24.06	96
What are the chances you could ask your partner to go for an HIV test with you?	High chance	86.97	347
	Low chance	13.03	52
What are the chances of you refusing sex if your partner does not want to let you use a condom?	High chance	80.20	320
	Low chance	19.80	79

LDTDs who knew that AIDS is caused by HIV, 91.67% were with no formal education, 91.94% with primary education, 98.02% with secondary education, and 100% of those with tertiary education knew that AIDS is caused by HIV. This rendered a p-value of 0.000, which is significant, thus rejecting the null hypothesis that the level of education is not associated with the knowledge that HIV causes AIDS. All

other knowledge questions on HIV/AIDS in table 8a also show an association in knowledge of HIV/AIDS with the level of education (P<0.05).

LDTDs' sexual behaviours: As shown in Table 9 below, more than half of LDTDs sampled (56.89%; n=227) had at some point paid for sex with commercial sex workers and

27.07% (n=108) had had sex with commercial sex workers without using a condom. As many as 34.09% (n=136) of the LDTDs had paid for sex with commercial sex workers in the past 12 months. A significantly high number of LDTDs (97.24%; n=388) knew where to get condoms when in need of them. Most LDTDs scored above 90% on the following: on their confidence in their ability to put on a condom (93.48%; n=373); their confidence in their ability to remove and dispose of a condom after sexual intercourse (93.23; n=372); their ability to purchase condoms without feeling embarrassed (90.48%; n=361); their ability to get a condom from a public place without feeling embarrassed (91.48%; n=365); and their ability to remember to carry a condom on their journeys (93.23%; n=372). The results also show that 29.07% (n=116) reported that they would not feel sufficiently confident to suggest using a condom to a new partner because of the fear that the partner would think they have a sexually transmitted disease. Just above half of the LDTDs (51.38%; n=205) in the study thought that a condom does not create doubt between sexual partners, while 37.59% (n=150) were of the view that a condom does create doubt, and the rest (11.03%; n=44) were not sure. Table 9 shows that 75.94% (n=303) were worried about getting HIV and 80.20% (n=320) indicated that there was good chance that they might refuse sex if their partner refused to let them use a condom. The results also reveal that 86.97% (347) indicated that there was a good chance that they might take an HIV test with their partners.

Use of condom before sex: Close to half (48%) of the LDTDs in this study indicated that they did not use a condom the last time they had sex (Fig 5).

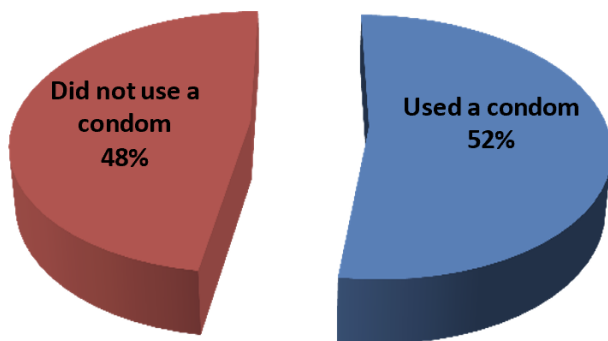


Figure 5: Long-distance truck drivers’ sexual behaviour

Reasons for non-condom use by the LDTDs: The results of this study shows that 42.86% (n=171) of the LDTDs did not use condoms for the reason that they trusted their partners, followed by 39.60% (n=158) who gave the reason that they are married, while 8.77% (n=35) gave the reason that their partners did not like condom use while 12.78% (n= 51) of the LDTDs did not like to use condoms. The rest (16.79; n=67) did not choose one of the specified reasons (Figure 6).

Reasons for not always using a condom: Table 10 below shows the reasons given by LDTDs for not always using a condom when they have sex. One reason was the unavailability of condoms (17.29%; n=69), while 15.29%

(n=61) had not planned to have sex. 21.55 % (n=86) indicated that they only use condoms with casual partners, while 12.28 % (n=49) said that condoms killed the mood for sex. The results also show that 9.52 % (n=38) had taken alcohol, and a greater proportion (38.85%; n=155) had reasons other than those specified in the questionnaire for not consistently using condoms.

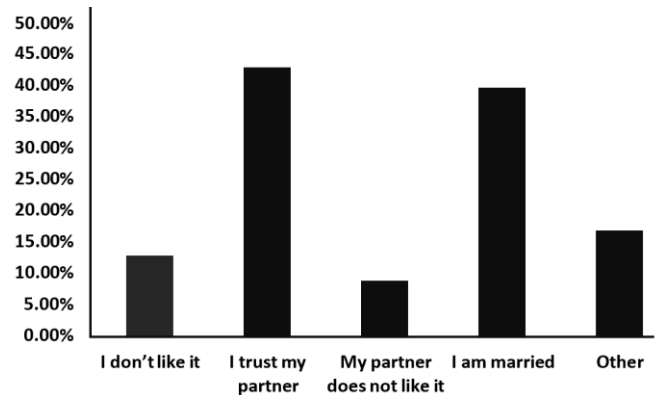


Figure 6: Reasons for not using a condom

Table 10: Reasons for not always using a condom

If you don't use condoms always what are your reasons	%	Frequency
1. A condom was not available	17.29	69
2. I did not plan to have sex	15.29	61
3. I only use condoms with casual partners	21.55	86
4. Condom kills mood for sex	12.28	49
5. I had taken alcohol	9.52	38
6. Other	38.85	155

Table 11: Bivariate analysis of age category and paying for sex in the past 12 months

Age category	Paid for sex in the past 12 months		Total
	Disagree	Agree	
1	1 0.25	3 0.75	4 1.00
2	44 11.03	26 6.52	70 17.54
3	218 54.64	107 26.82	325 81.45
Total	263 65.91	136 34.09	399 100.00

Pearson’s Chi² (2) = 3.4670 Pr = 0.177 Fisher’s exact test = 0.160

Table 11 above shows that a total of 136 (34.09%) LDTDs paid for sex in the past 12 months on their long-distance journeys. Of this figure, 0.75% (n=3) were aged below 25 years (age category 1) while 6.52% (n=26) were in age category 2 (25-30 years) and category 3 (>30 years) had a greater proportion (26.82%; n=107). A bivariate analysis shows that the age category is not associated with paying for sex in the LDTDs travels in the past 12 months, with a Pearson chi² p- value of = 0.177, not significant.

We observed that 56.89% (n=227) of the LDTDs paid for sex on their long distance- journeys. Table 13a, below shows that 0.75% were younger than 25 years old, while 9.02% were between 25 and 30 years old, and those more than 30 years old accounted for 47.12%. A bivariate analysis of the demographic variables demonstrated that paying for sex is not associated with age (P>0.05). Age was also not associated with having sex with CSWs without using a condom (P>0.05) but a higher proportion of those who had not used condoms were >30 years (22.06%) compared to 0.50% and 4.51% for ages >25 years and ages 25-30 years (Table 12).

Paying for sex at some point on long-distance travels and having sex with CSWs without using a condom were

not associated with religion (P>0.05), but were associated with being a local or an international truck driver, the years spent in truck driving, the present living arrangements and the number of girlfriends a participant had had in the past 12 months, (P<0.05). A higher proportion of international LDTDs paid for sex (51.38%) in their long- distance travels compared to local LDTDs (5.51%) and being an LDTD was associated with paying for sex with a CSW (P<0.05). The years spent in long-distance truck driving, the living arrangements, and the number of girl friends in the past 12 months were also associated with paying for sex with commercial sex workers (P<0.05).

Table 12:
Demographic characteristics and paying for sex with CSWs

Demographic characteristics	Covariate	Category	MODEL 1 I have at some point paid for sex with CSWs during my long-distance trucking			MODEL 2 I have had sex with a CSW without using a condom		
			True	False	P-value	True	False	P-value
Age (years)		<25	0.75%	0.25%	0.471	0.50%	0.50%	0.568
		25-30	9.02%	8.52%		4.51%	13.03%	
		>30	47.12%	34.34%		22.06%	59.40%	
Religion		Christianity	40.60%	29.82%	0.280	18.30%	52.13%	0.259
		Buddhism	0.50%	0.25%		0.50%	0.25%	
		Islam	1.00%	2.26%		0.50%	0.76%	
		None	14.79%	10.78%		7.77%	17.79%	
Local/ International		Local	5.51%	12.78%	0.000	24.06%	15.29%	0.024
		International	51.38%	30.38%		3.01%	57.64%	
Years spent in trucking industry		≤5	16.54%	15.54%	0.009	8.27%	23.81%	0.002
		6-10	11.53%	12.28%		3.51%	20.30%	
		>10	28.82%	15.29%		15.29%	28.82%	
Present living arrangement		Wife	22.07%	22.56%	0.000	12.03%	36.59%	0.012
		Girlfriend	5.01%	8.27%		2.51%	10.78%	
		Parents/Family	5.01%	4.76%		1.75%	8.02%	
		Alone	20.80%	7.52%		10.78%	17.54%	
Number of girlfriends in the past 12 months		None	13.07%	21.36%	0.000	6.03%	28.39%	0.000
		One	16.83%	13.82%		6.53%	24.12%	
		Two	12.31%	4.27%		6.53%	10.05%	
		More than two	14.82%	3.52%		8.04%	10.30%	

Table 13:
Demographic characteristics and paying for sex with CSWs

Demographic characteristics	Covariate	Category	MODEL 1 I have at some point paid for sex with CSWs during my long-distance trucking			MODEL 2 I have had sex with a CSW without using a condom		
			True	False	P-value	True	False	P-value
Age at the start of truck driving (years)		<25	9.77%	5.76%	0.313	3.76%	11.78%	0.532
		25-30	29.07%	20.80%		12.78%	37.09%	
		>30	18.05%	16.54%		10.53%	24.06%	
Relationship status		Married	38.60%	27.32%	0.686	19.30%	46.62%	0.068
		Steady girl friend	11.78%	10.73%		3.76%	18.55%	
		Casual partner	5.51%	4.01%		3.01%	6.52%	
		No girl friend	1.00%	1.25%		1.00%	1.25%	
Length of time in a relationship		<5 years	2.26%	3.01%	0.304	1.75%	3.51%	0.539
		1-5 years	20.05%	16.29%		8.77%	27.57%	
		>5 years	34.59%	23.81%		16.54%	41.85%	

Table 13 also shows that, though age at start of truck driving was not a predictor in paying for sex with CSWs or having sex with CSWs without using a condom ($P>0.05$). Those who entered long distance truck driving at more than 30 years were fewer (18.05%) compared to those of ages between 25 and 30 years (29.07%). Those less than 25 years accounted for 9.77%.

Our study shows that most of the socio-demographics of this group were not associated with their sexual behaviours ($P>0.05$) and favour the null hypothesis. However, being a local or international LDTD was associated with paying for sex in the past 12 months ($P<0.05$) which favours the alternative hypothesis. Being a LDTD (local/international) was also associated with a lack of confidence in suggesting condom use to a new partner for fear that they would be judged as having an STI ($P<0.05$). The results also show significance in association being a LDTD (local/international) and believing that the use of a condom creates doubt between partners ($P<0.05$). Age of participant was also associated with feeling confident to get a condom in public without feeling embarrassed ($P<0.05$). Age at the start of truck driving is only associated with paying for sex in the past 12 months ($P<0.05$). The years spent in truck driving showed an association with feeling confident about getting condoms in public places without feeling embarrassed ($P<0.05$). Relationship status was associated with confidence in the ability to put on a condom, remove and dispose of it, and with the question on whether a condom creates doubt between partners ($P<0.05$). The multivariate analysis depicted in table 14 below shows that international LDTDs were 2.72 times more likely than local drivers to buy sex in the past 12 months ($P<0.05$).

In this study religion was not associated with the belief that condom use creates doubt between partners ($P>0.05$) neither is education ($P>0.05$). An international LDTD was 1.94 times more likely to hold the belief that condoms create doubt between partners than a local driver, with a P - ($P<0.05$). There was a 0.40 less chance that those in a sexual relationship would believe that condoms create doubt between partners than those not involved in a sexual relationship ($P<0.05$). Those living with other people (e.g. their sexual partners) were 0.62 times less likely to believe that condoms cause doubt ($P<0.05$).

DISCUSSION

This study investigated the level of knowledge of LDTDs about HIV/AIDS and their sexual behaviours. The mean age of the participants was 39.7 years, SD 8.89. The minimum age was 23 years and the maximum age 63 years, and all the LDTDs in the sample were males. These demographic results are similar to that of Poda and Sanon (2015). The predominant religion was Christianity with 70.4% ($n=281$) affiliates, and these results are close to that of Aniebue and Aniebue, (2009), where Christians accounted for 75.8% of the study participants. Furthermore, there were more married participants (65.9%) than unmarried, other studies have reported a significantly high proportion of married LDTDs of up to 91.3% (Awosan *et al*, 2014).

In this study, we reported that 37.8% of participants were engaged in extra-marital sex although majority of LDTDs were married and/or cohabiting with steady sexual partners. This confirms the findings of other studies that shows that LDTDs engage in extramarital relationships with multiple sexual partners. However, a few studies reported as high as 84.5% of married LDTDs engaging in extramarital relationships (Atilola *et al*, 2010; Aniebue and Aniebue, 2009). Research shows that some LDTDs had an average of 22.6 sexual partners since commencing driving and 3.6 in the past 6 months - other than their wives (Anita *et al*, 2009). Although some studies reveal age as a significant demographic predictor of condom use, our study shows that there is no association between condom use and age, notwithstanding, a high proportion of non-condom use was attributable to participants above 30 years of age (Nasir *et al*, 2015).

In addition to concurring with the findings of other studies that indicated an association between being unmarried with riskier sexual behaviours, our study also revealed other socio-demographic characteristics that are associated with risky sexual behaviour such as paying to have sex. We also observed that LDTDs who were living with other people were less likely to pay for sex than those living alone) and those with many sexual partners were more likely to buy sex (Aniebue and Aniebue, 2009; Nasir *et al*, 2015).

As observed in our study, other factors that influence LDTDs sexual behaviors and predispose them to acquiring HIV infection include a failure to use condom due to condom unavailability, and alcohol intake before sex (Tehrani and Afzali, 2008). Furthermore, this study shows socio-demographic factors such as the age of entry into the truck driving occupation to play a significant role in sexual behavior, with those who entered from the age of 30 years or below displaying more sexually risky behaviour such as paying for sex than those who entered at above 30 years of age, although age of entry into truck driving was not a predictor of paying to have sex with CSWs. These findings are consistent with those of a study by Mishra *et al*, (2012).

A study conducted in South Africa shows that there is a mild relationship between time spent on the road and the risk of acquiring HIV, and mobility increases this chance due to the reduced access to health services and the fertile conditions for unsafe sex (Delany-Moretlwe *et al*, 2014). This resonates well with the findings of our study that indicate that international LDTDs were 2.72 times more likely to buy sex than local drivers. As indicated by Delay-Moretlwe *et al* (2014) on the topic of LDTDs and mobility, international LDTDs generally spend more time on the road, and this exposes them to acquiring and transmitting HIV. This suggests that mobility is one of the key drivers of the HIV epidemic and promotes transmission through inducing risky sexual behaviours. Deane *et al* (2010) found a strong association between mobility and an increase in HIV infection. Our study attests to this notion, with more than half of the participants having at some point paid for sex with commercial sex workers, and most of them being cross-border haulers. LDTDs engage in sexually risky behaviours and the results of this study also confirm this practice in other studies (Lakew *et al*, 2015; Atilola *et al*, 2010). Contrary to the conclusions of a

study conducted in Uganda that reported a high rate of condom use of up to 87% among truck drivers in the last month, only 52% of the LDTDs in our study used condoms in their last sexual encounter. Our study found that 56.89% of the LDTDs had at some point paid to have sex with CSWs, and 27.07% had paid for sex in the past 12 months.

Different studies have yielded different results on the LDTDs' level of knowledge about HIV/AIDS, with some studies in Nigeria, Morocco and Iran showing a low level of knowledge, and some a much lower HIV knowledge index (Himmich *et al*, 2015; Tehrani and Afzali, 2008). Our study seems to disagree with the above studies but agrees with the study of Agrawal (2012) and Poda and Sanon (2015), who found a generally average level of knowledge. Our study yielded higher results on the level of knowledge that HIV can be transmitted through sex with an infected person (94.99%), and 90.23% knew that condoms can prevent HIV transmission. These results are consistent with those of Singh and Joshi (2012), where 81.8% of the participants were aware that HIV can be transmitted through heterosexual route and knew that condom use can reduce HIV transmission (Agrawal, 2012). Our study shows that the level of education has an influence on knowledge about HIV/AIDS with those with secondary to tertiary education displaying more knowledge than those who had no formal to primary education. In this study, the level of knowledge that HIV causes AIDS was high across all education levels and this knowledge increased with an increase in literacy, being 91.67% for those with non-formal education, 91.94% for those with primary education, 98.02% for those with secondary education and 100% for those with tertiary education, however, the level of education was nevertheless not a predictor of knowledge that HIV causes AIDS.

The main source of information about HIV in this study was the media, at 65.91%, followed by school at 62.91%, and similar sources were reported in other studies (Nasir *et al*, 2015; Anita *et al*, 2009). All the participants (100%) had heard about HIV/AIDS, and this is consistent with other studies that also revealed that 97.6% to 100% awareness of HIV/AIDS (Poda and Sanon, 2015).

Findings of our study show very low levels of misconception about the cause and transmission of HIV (Singh and Joshi, 2012). Only 5% held the misconception that HIV is caused by witchcraft, while only 6% believed that HIV can be prevented by washing one's genitals with soap after sex. Some studies have also cited other misconceptions such as sharing a room or mosquito bites as means of HIV transmission (Poda and Sanon, 2015). Our study also found that participants had sufficient knowledge of HIV transmission, however a percentage believe that HIV can be transmitted through sharing glasses and sharing toilets.

In conclusion, this study reports on LDTDs level of knowledge about HIV/AIDS and their sexual behaviours at Kazungula weigh-bridge terminal in Botswana. The study demonstrates that LDTDs have a significantly high level of knowledge about HIV/AIDS, such as knowledge of the cause of AIDS and the modes of HIV transmission. Nonetheless, this knowledge did not translate into behaviour change. Most of the LDTDs exhibited risky sexual behaviours, such as paying to have sex with CSWs, having multiple sexual partners,

inconsistent or no condom use due to alcohol use, or holding the perception that condom use kills the mood for sex. LDTDs therefore remain a risky group for HIV acquisition and transmission, and the risk is greater with international LDTDs than with those travelling locally.

One of the early interventions to abate LDTDs' sexual behaviours could be through health talk (health education that should be communicated to them in the language they best understood and in a friendly, non-judgmental approach. There is a need for a public health policy that is aimed at advocating interventions that are geared specifically towards assisting LDTDs to ameliorate their sexual behavior problems. These activities, among others, should assist in the promotion of safe sex and condom use among long-distance truck drivers, with availability of condoms at petrol stations and other stopping sites on the highways. Some of the critical HIV prevention strategies with high success rate, that need to be embraced to augment the existing ones include the provision of PEP and PrEP to high-risk groups such as LDTDs, and the government as the main provider of health care services in Botswana can also realize this through the involvement and assistance of the private and donor sectors.

This study was cross-sectional and by its nature could not establish changes in LDTDs' behaviour over time, or the reasons associated with their behaviours. There is also possibility of bias in the responses of the participants, who may have given what they thought were socially acceptable responses, especially as the questionnaire were administered by the researchers.

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