

Knowledge, Attitudes and Practices Relating to HIV among Motorbike Taxi Drivers in Parakou in 2021

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Abstract

Background and Objective: HIV infection is a major global Public Health threat worldwide, particularly in Sub-Saharan Africa of which Benin. The level of knowledge determines the attitudes and behaviors of the populations towards this infection. The study objective was to assess knowledge, attitudes and practices related to HIV infection among motorbike taxi drivers (MTD) in Parakou in 2021. **Methods:** This was a descriptive cross-sectional study targeting MTD in Parakou in 2021. Participants were selected by cluster sampling. Pretested Digitized questionnaire using KoboCollect® application-served as a data collection tool. Knowledge, attitudes and practices variable were treated on a score scale. A knowledge score was considered to reflect a good knowledge of HIV if at least two-thirds of the knowledge statements had been correctly answered provided the subject recognized the sexual route as one of modes of HIV transmission, identified at least one preventive measure and meant the incurability of the disease. Quantitative and qualitative variables were appropriately described using the EPI Info 7.1.3.3 software. The participant was classified at positive attitude/practice for HIV prevention, when it has a score of at least 80% and suggests a good preventive measure face a risk of exposure to HIV. **Results:** A total of 374 subjects were recruited into the study. The mean age was 31.51 ± 7.76 years. Most participants (86.06%) had good knowledge of condom use as an HIV prevention method. The sources of information mentioned were mainly the media (77.07%), rela-

tives or friends (63.38%), and field-workers from non-governmental organizations (37.26%). Routine HIV testing was 50.53%. Among participants, 76.10% reported at least two different sexual partners. Condom use was 59.18 % during the casual sexual intercourse. Within the client-provider relationship with female sex workers, 33.17% had had sexual intercourse with them. The sexual route was the most cited (92.99%), and 90.23% stated that HIV infection can be stabilized by medication in a health structure. Conclusion: The level of knowledge of motorbike taxi drivers in Parakou does not match their behavior with regard to HIV prevention. Appropriate strategies are needed to develop prevention skills in this population. To effectively comb at HIV, it will be necessary to strengthen the targeted HIV preventive interventions at key and bridge populations including motorbike taxi drivers in Benin.

Keywords

Knowledge, Practice, HIV, Motorbike Taxi Drivers, Benin

1. Introduction

HIV infection is one of the world's major three public health priorities, particularly in developing countries, where sub-Saharan Africa continues to be the region most heavily affected [1]. In 2021, of the 1.5 million new infections worldwide, 59% occurred in sub-Saharan Africa. Specifically, 82% of newly infected adolescent girls and young women lived in this region, which accounts for just 12% of the world's population [2]. In Benin, the HIV epidemic is widespread, with national prevalence stable at 1.2% since 2006, and disparities both geographically and in key populations. These key populations in the dynamics of HIV transmission are female sex workers (FSWs), men who have sex with men (MSM), transgender people and injecting drug users [3]. In addition to these key populations, there are bridge populations that are still poorly understood and which act as a bridge for the transmission of infection from these populations to the general population at lower risk [4]. Motorbike taxi drivers, by virtue of their profession and their constant interaction with FSWs, are thought to be a bridge for the transmission of HIV infection from these FSWs to the general population at lower risk [5].

Studies have been conducted in Benin on the bridging role played by female sex worker clients and the effectiveness of interventions targeting these clients in spreading the epidemic [6] [7].

This study of HIV-related knowledge, attitudes and practices among motorbike taxi drivers in Parakou could therefore provide initial data for extending targeted interventions to control the HIV epidemic in Benin.

2. Materials and Methods

2.1. Study Site, Type and Objective

The study took place in Parakou, the largest municipality of economic and po-

litical importance in the region of Borgou. It covers an area of 441 km², 53.3% of which is occupied by settlements. With an estimated population of 375,000 in 2021, Parakou has three arrondissements and forty-two districts of areas and villages [8]. It is a town with a high level of commercial activity, it had around 15,000 motorbike taxi drivers in 2021, with 20 permanent motorbikes parks. for their smooth running, they were managed by the town council and 13 motorbike taxi drivers' unions.

This was a descriptive cross-sectional study targeting motorbike taxi drivers operating in the commune of Parakou in 2021 which aimed to study their HIV-related knowledge, attitudes and practices.

2.2. Eligibility Criteria, Sampling, Recruitment and Data Collection

All motorbike taxi drivers aged at least 18 years and operating in the commune of Parakou were included in the study if they gave their verbal, free and informed consent to participate in the study. Only those who were unable to complete the questionnaire or who discontinued the interview for one reason or another were excluded from the study.

Motorbike taxi drivers have muster points that are their parks where they can have a stop for a short break after a work phase in the day. Systematic random sampling was carried out in clusters, the clusters being the motorbike taxi parks of the motorbike taxi drivers selected according to a probability proportional to the size of the motorbike taxi parks and using the cumulative totals method.

The minimum sample size was calculated using the Schwartz formula with a precision of 4% and a cluster effect of 2. This sample size of 333 was increased by 10% for a final desired sample size of 366 to guarantee good precision of the estimates in the study. For this size, 12 motorbike taxi drivers parks were selected using the technique described above.

As in a cluster survey, all motorbike taxi drivers present in the 12 sampled parks and meeting the inclusion criteria with free and informed verbal consent were included in the study.

The data collection tool was a questionnaire. In addition to socio-demographic characteristics, the questionnaire was developed on the basis of knowledge, attitude and practice variables. The questionnaire was dedicated to collecting information about socio-demographic characteristics, issues related to HIV knowledge (information received, sources of information, HIV transmission routes), HIV prevention and management, organizational characteristics (community sensitizations on STIs/HIV on parks, peer education on STIs/HIV, access to male condoms), behavioural characteristics at risk of STIs/HIV including various relationships with sex workers. The questionnaire was based on that of the demographic health survey in Benin 2017-2018 [8].

Data collection was digital. The pre-tested questionnaire was digitized beforehand on Smartphones using the free and accessible KoboCollect® v1.30.1 mobile data collection application. The data collected was systematically transferred and stored on the KoBoToolbox platform. It is important to note that the inter-

viewers were trained for the study.

The three variables of interest in the study were processed using score scales.

A knowledge score was considered to reflect good knowledge of HIV if at least two-thirds of the knowledge statements had been answered correctly, provided that the participant recognized sexual intercourse as one of the routes of transmission, identified at least one preventive measure and recognized that the disease was incurable.

The second and third variables were attitude and practice towards HIV. A subject was said to have a favorable attitude to HIV prevention when he had a score of at least 80% and suggested a good preventive measure when faced with a situation exposing him to the risk of HIV. A subject was said to have a favorable attitude to HIV prevention when he scored at least 80% and suggested a good preventive measure in a situation where there was a risk of exposure to HIV.

2.3. Data Processing and Statistical Analysis

The data stored locally on the KoBoToolbox platform were exported in XLS format to the data processing and analysis area of the EPI Info 7.1.3.3 software.

The parameters of central trends and dispersion were used to describe the quantitative variables, and the proportions (percentages) for the qualitative variables, all with their respective confidence intervals (CI).

2.4. Ethical Considerations

The study protocol was approved by an ad hoc committee of the School of Public Health and Epidemiology of the University of Parakou in Benin. Free and informed verbal consent was obtained from each potential participant before enrolment in the study. It should be noted that data collection in the study complied with the ethical principles contained in the World Medical Association's Declaration of Helsinki [9]. Subjects were reassured that the information collected would remain anonymous and confidential.

3. Results

The expected sample size to ensure sufficient statistical power in the study was estimated at 366. However, due to our cluster sampling, we finally recruited 374 motorbike taxi drivers in the study.

Sociodemographic description

In our study population, the mean age was 31.51 ± 7.76 years. The median age was 30 years [Interquartile range: 26 - 35]. Nearly half (49%) of the motorbike taxi drivers were under 30 years of age. More than a quarter (27.81%) of the motorbike taxi drivers' population had a university education. Almost a quarter (24.52%) of the population had no access to condoms (Table 1).

Motorbike taxi drivers' level of knowledge about HIV

In our study, most of the 314/374 (83.96%) motorbike taxi drivers had once heard of HIV/AIDS. Of the 314 motorbike taxi drivers who had once heard of sexually

Table 1. Distribution of motorbike taxi drivers according to socio-demographic and organizational characteristics related to STI/HIV, Municipality of Parakou, 2021.

	Participants (%)	Confidence Interval (IC _{95%})
Age		
Mean ± SD*	31.51 ± 7.76	-
Median (IQR)**	30 (26 - 35)	-
Group Age		
	N = 374	
20 - 30	182 (48.66)	31.46 - 76.92
30 - 40	131 (35.03)	21.64 - 57.57
40 - 50	43 (11.50)	4.83 - 28.22
50 - 61	18 (4.81)	1.21 - 17.68
Nationality		
	N = 374	
Beninese	355 (94.92)	92.20 - 96.72
Foreigner	19 (5.09)	3.28 - 7.80
Residence		
	N = 374	
Urban	160 (42.78)	37.86 - 47.84
Suburban	118 (31.55)	27.05 - 36.43
Rural	96 (25.67)	21.50 - 30.39
Religion		
	N = 374	
Muslim	113 (30.21)	25.78 - 35.05
Christian	247 (66.04)	61.10 - 70.66
Traditional	14 (3.74)	2.24 - 6.18
Marital Status		
	N = 374	
Single	16 (4.28)	2.65 - 6.24
Geographic Single	124 (33.15)	28.58 - 38.08
Married living in couple	227 (60.70)	55.66 - 65.51
Divorced	4 (1.07)	0.42 - 2.72
Widower	3 (0.80)	0.27 - 2.33
Type of marriage		
	N = 227	
Monogamous	205 (90.31)	85.69 - 93.83
Polygamous	22 (9.69)	6.17 - 14.31
Level of Education		
	N = 374	
No education	45 (1.03)	9.12 - 15.72
Primary	77 (20.59)	16.80 - 24.98
Secondary 1	60 (16.04)	12.67 - 20.10
Secondary 2	88 (23.53)	19.51 - 28.08
Tertiary	104 (27.81)	23.51 - 32.56
Monthly Income		
	N = 374	
<40000	368 (98.40)	96.54 - 99.26
≥40000	6 (1.60)	0.74 - 3.46
Group Participation in BCC*** on STI/HIV		
	N = 314	
Yes	183 (58.28)	50.42 - 60.46
No	131 (41.72)	39.54 - 49.58
Participation in peer-education on STI/HIV		
	N = 314	
Yes	197 (62.74)	58.27 - 68.00
No	117 (37.26)	32.00 - 41.73
Access to condom		
	N = 314	
Yes	237 (75.48)	71.00 - 79.69
No	77 (24.52)	20.31 - 29.00

*Standard deviation ; **Interquartile range ; *** Behavior Change Communication.

transmitted infections including HIV (STI/HIV), the media, parents/relatives/friends and field-workers from associations/NGOs were respectively 77.07%, 63.38% and 37.26% of the sources of information mentioned by the motorbike taxi drivers (**Figure 1**). In terms of knowledge of the route of HIV transmission, sexual transmission (92.99%) was the best-known route, followed by contaminated objects (54.14%), blood transfusion (42.04%) and mother-to-child transmission (14.97%) (**Figure 2(A)**). The main means of HIV prevention cited were condoms (86.06%), fidelity (29.25%), limiting the number of sexual partners (22.79%) and sexual abstinence (22.45%). Condoms remain the most widely known means of prevention, and they reported nothing on biological methods of HIV prevention (**Figure 2(B)**). Regarding the management of HIV infection, 256/314 (81.53%) of the motorbike taxi drivers said they knew the means of treatment, the most frequently cited being: treatment with drugs in a health facility: 231/256 (90.23%), treatment by traditional healers: 15/256 (5.86%) based on endogenous therapies and self-medication was mentioned in 9/256 (3.52%) of cases (**Figure 3**).

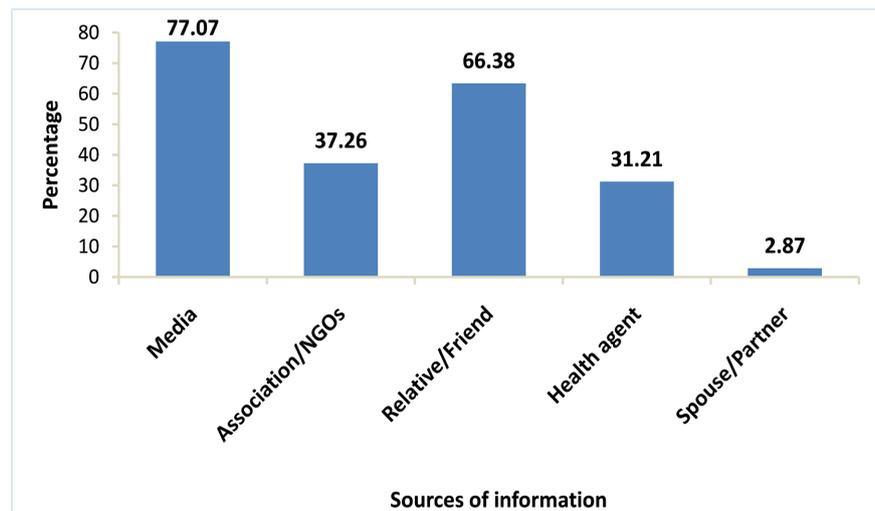
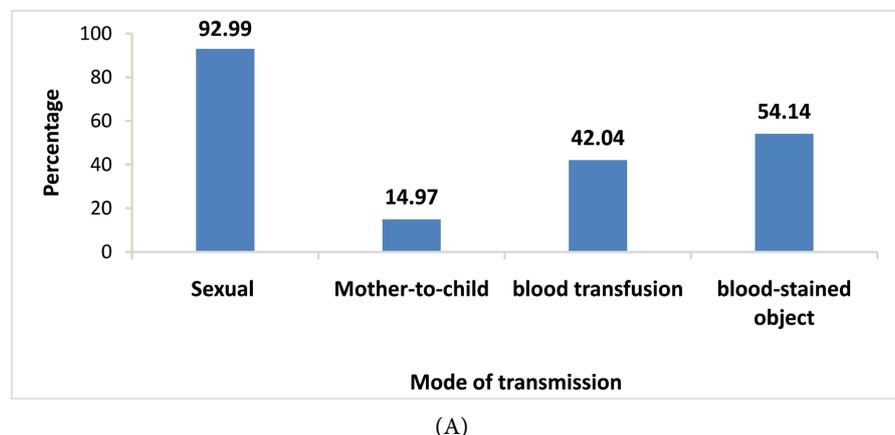


Figure 1. Distribution of motorbike taxi drivers interviewed in the municipality of Parakou according to the source of information on HIV in 2021 (n = 314).



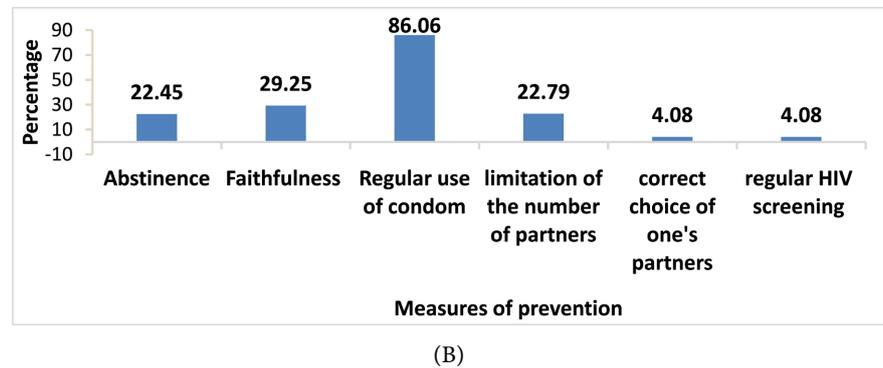


Figure 2. Distribution of motorbike taxi drivers interviewed in the municipality of Parakou in Benin according to their knowledge on HIV prevention, 2021 (n = 294). (A) (n = 314); (B) (n = 294).

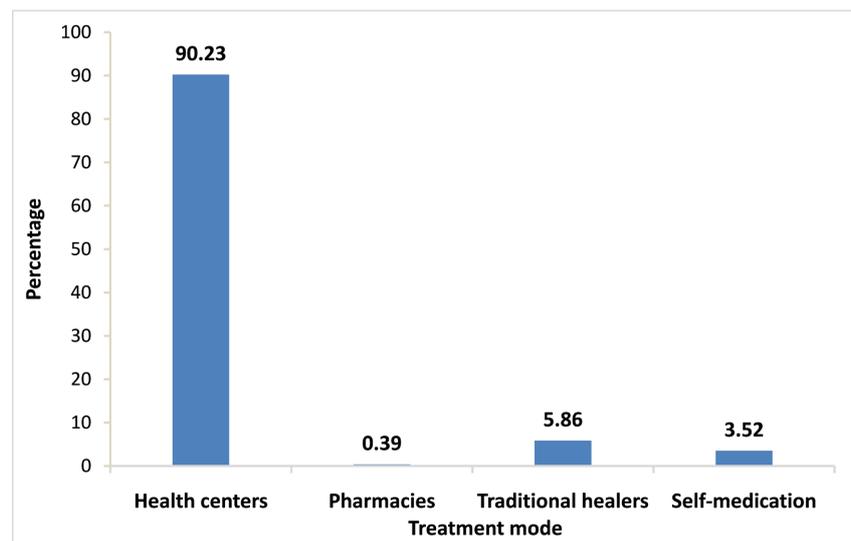


Figure 3. Distribution of motorbike taxi drivers interviewed in the municipality according to their knowledge on HIV treatment mode, 2021 (N = 256).

HIV attitudes and practices

Among the subjects surveyed, some motorbike taxi drivers had an unfavorable attitude to HIV prevention. In our study, 50.53% of the motorbike taxi drivers confirmed that they had been screened for HIV. In the last three months, 39.04% (98/351) of our participants had used condoms during sexual intercourse. Among the Motorbike taxi drivers interviewed, 76.10% (191/251) reported at least two different sexual partners, 35.86% (90/251) of whom were casual sexual partners with whom condoms were used in 59.18% of cases (58/90). Condom use was correct for prevention in 84.48% (49/58) of motorbike taxi drivers.

Of the participants, 54.01% (202/374) had at least one acquaintance with a female sex worker. In 33.17% (67/202) of cases, these female sex workers were their clients for professional services. In this client-provider relationship, 33.17% (25/67) had had sexual intercourse with their female sex worker client, using a condom correctly in 52% (13/25) of cases ([table 2](#)).

Table 2. Distribution of motorbike taxi drivers according to their attitudes and practices related to HIV, Municipality of Parakou, 2021.

	Participants n (%)	Confidence Interval (IC _{95%})
Systematic HIV screening during the last three months	N = 374	
Yes	189 (50,53)	45,35 - 55,71
No	185 (49,47)	44,29 - 54,65
Use of condom during the last three months	N = 251	
Yes	98 (39,04)	32,97 - 45,38
No	153 (60,96)	54,62 - 67,03
Number of partners during the last three months	N = 251	
Only one	60 (23,90)	18,77 - 29,67
≥ 2	91 (36,25)	30,33 - 42,17
Type of partners during the last three months	N = 251	
Casual	90 (35,86)	29,92 - 42,13
Regular partner other than the spouse	77 (30,68)	25,03 - 36,79
Spouse	84 (33,47)	27,66 - 39,67
Use of condom with an occasional partner	N = 90	
Yes	58 (64,44)	48,79 - 69,01
No	40 (40,82)	30,99 - 51,21
Correct use of condom during sexual intercourses	N = 58	
Yes	49 (84,48)	75,16 - 93,80
No	9 (15,52)	6,20 - 24,84
Knowledge of at least a FSW	N = 374	
Yes	202 (54,01)	48,94 - 59,00
No	172 (45,99)	41,00 - 51,06
FSWs, Clients of motorbike taxi drivers	N = 202	
Yes	67 (33,17)	26,72 - 40,12
No	135 (66,83)	59,88 - 73,28
Sexual Intercourses with a FSW	N = 67	
Yes	25 (37,31)	25,73 - 48,90
No	42 (62,69)	50,32 - 95,43
Correct use of condom during sexual intercourses with a FSW	N = 25	
Yes	13 (52,00)	32,42 - 71,58
No	12 (48,00)	33,08 - 70,92

4. Discussion

Key populations engage in high-risk practices for acquiring and transmitting HIV and other sexually transmitted infections. In West Africa, where the HIV epidemic is concentrated in most countries among groups known to be at high risk of STI/HIV, strategies to redirect and refocus interventions towards these key populations have been promoted by some programs supporting the fight against AIDS in West Africa [10]. However, as soon as these external support programs withdrew, there was little coverage of prevention and treatment services developed for these populations [11]. In addition to these key populations,

there are bridge populations which reinforce the spread of the epidemic.

In our study, 86.06% were aware that regular condom use is an effective measure to prevent HIV transmission. Ifeoma *et al.* in 2012, in a KAP survey of bus drivers in Lagos, Nigeria, reported good knowledge of HIV and condom use as a safer prevention measure [12]. Similarly, the majority (88.4%) of these drivers systematically consented to HIV testing, with this proportion of acceptability higher than that found in our study [12]. This difference could be explained by the fact that these drivers were more exposed to STI/HIV awareness messages. The media, parents/relatives/friends and associations/NGOs (77.07%, 63.38% and 37.26% respectively) were the sources of information mentioned by motorbike taxi drivers. A study by Kondé in 2009 found that the media (90.3%), friends (50.5%) and group discussions (40.6%) were the main sources of information in Niger [13]. The media remains the primary source of information about the risk of HIV infection. These different results may suggest that most West African countries use the media as the preferred channel for communicating about the risks of STI/HIV. In our study, the routes of transmission were known to varying degrees, and most of them cited more than one route of transmission. Sexual transmission predominated, with a proportion of 92.99%, followed by soiled sharp objects, blood transfusion and mother-to-child transmission. Our results were similar to those found by Ifeoma *et al.* in 2012, where the routes of transmission, such as sexual transmission and the use of soiled sharp instruments, were the most widely known, in increasing proportions each time [12]. The regular use of condoms, when necessary (especially during occasional sexual intercourse), which was the most reported, could be explained by the fact that most information and communication programs use the media to inculcate that condom protection is the most effective method of HIV prevention.

With regard to their knowledge of how HIV infection is managed, while follow-up in health facilities is widely mentioned (90.23%), questions remain about traditional therapy and self-medication. The use of traditional healers has been reported by Peters *et al.* who note that the lack of security in the practices of these healers could be a significant source of the spread of HIV in Africa [14].

In our study, more than three quarters (76.10%) of subjects had had at least two sexual partners in the previous three months. The same findings were made by Lindan *et al.* where in their study population of motorbike taxi drivers in Uganda, one motorbike taxi driver had between 4 and 6 occasional sexual partners [15]. The results could be explained by the fact that most motorbike taxi drivers are in rural exodus, leaving their families in the village and the reality of African cultural tolerance of multi-partnering with women. Although the majority of motorbike taxi drivers interviewed (86.06%) cited condoms as a means of HIV prevention, their use remains irregular. Lakew *et al.* reported in their study of taxi drivers in Addis Ababa in Ethiopia that almost 31% of participants reported casual sex, of which only 7% were reported to be protected by condom use. Moreover, half of those who used condoms reported that they had broken or slipped off, thereby nullifying any preventive efficacy [16]. The practice of

sexual intercourse with sex workers found in our study was also reported in south-west Uganda in the study by Nabifo *et al.*, where 6.68% of the motorbike taxi drivers who had sex workers as transport clients had had sexual intercourse with them at least once, in a context where almost half had not used condoms [17]. In our study, the lack of concordance between the results for knowledge, attitudes and practices could be linked to the ineffectiveness of the communication method on the risks of STI/HIV. In fact, in the current form of the communication strategy, the information, education and communication (IEC) strategy, which is gradually being replaced by behavior change communication (BCC), after the information has been passed on, as the predominance of the media might indicate, there are no longer any supporting measures for community mobilization in the commitment of the community to the cause of the real fight against the disease. There is every reason to believe that the image boxes that have been developed serve only to embellish group awareness-raising sessions. What remains to be done is to create a continuum of action for advocacy, particularly in favor of the most vulnerable populations, mediation for action and empowerment of both individuals and communities. Pending the conduct of a second-generation surveillance survey in motorbike taxi drivers, combining behavioral and biological aspects, the results in our study show that the HIV risk cascade in motorbike taxi drivers, particularly in relation to female sex workers, is already considerable. This cascade starts with clients providing professional services and ends with sexual clients who have no preventive protection against HIV. Non-protection during sexual intercourse with female sex workers was reported at a high rate of 48%. Generally speaking, there is a cascade of risk with occasional sexual partners. This cascade starts from multiple sexual partners to a high proportion of casual sexual partners without preventive protection during sex (15.52% without consistent condom use during sex with casual sexual partners) and makes the motorbike taxi drivers a potential bridge for HIV transmission from female sex workers to the general population at lower risk. There is an urgent need to expand preventive interventions targeting clients of female sex workers and motorbike taxi drivers. An effective intervention would be routine screening for urinary tract infections using the LED test (provided a urine sample for leukocyte esterase dipstick (LED) in Motorbike taxi drivers with syndromic treatment for gonorrhoea and chlamydia. Such a systematic testing and treatment campaign raised awareness among clients of female sex workers about their risk of contracting HIV among these high-risk women [6] [7]. This collective primary HIV prevention measure among clients of female sex workers could be applied Motorbike taxi drivers' population. Risk Communication and Community Engagement (RCCE) on HIV in this population of motorbike taxi drivers is required to promote sexual health. We used cluster sampling. However, a probability proportional to the size technical using the cumulative totals method limits the potential selection bias. Information biases were possible, especially that of social desirability. However, as the interviewers were trained for the study, the pre-test of the questionnaire was carried out, and MTDs were not tar-

geted by HIV preventive interventions in Benin, we believe that such a potential bias should not have a significant effect on our results. We believe that our current results from a descriptive study are valid.

5. Conclusion

The level of knowledge of motorbike taxi drivers in Parakou does not match their behavior with regard to HIV prevention. Appropriate strategies are needed to develop prevention skills in this population. To effectively combat HIV, it will be necessary to strengthen the targeted HIV preventive interventions at key and bridge populations including motorbike taxi drivers in Benin.

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Conflict of interest

Financial conflict of interest

There were no financial conflicts of interest. The manuscript was written in the context of academic scientific production and contribution to scientific patrimony.

Non-financial conflict of interest

The study was carried out under the authors' own funding without support from any commercial institution. Consequently, the opinions expressed here are those of the authors and are in no way linked to the policy of any institution.

Contributions from the authors

Luc Béhanzin, Anicette Yénoukounmè Mahoutin Akodjetin, Maurice Togbédjé Agonnou, David Houéto and Thierry Adoukonou developed the study protocol. Luc Béhanzin, Anicette Yénoukounmè Mahoutin Akodjetin and Yessito Corine Nadège Houéhanou-Sonou technically supervised the study in the field. Virginie Mongbo, Phinéés Adégbola and Menakpo Ferdinand Adoukpe contributed to data collection. Phinéés Adégbola, Luc Béhanzin, Anicette Yénoukounmè Mahoutin Akodjetin and Yessito Corine Nadège Houéhanou-Sonou contributed to data analysis. The first version of the manuscript was written by Luc Béhanzin and revised by Anicette Yénoukounmè Mahoutin Akodjetin, Yessito Corine Nadège Houéhanou-Sonou, Phinéés Adégbola, Virginie Mongbo and Menakpo Ferdinand Adoukpe, Maurice Togbédjé Agonnou, David Houéto and Thierry Adoukonou. All the authors read and approved the final version of the manuscript.

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