

Acceptability of HIV Oral Self-test Among Truck Drivers and Youths: A Qualitative Investigation From Pune, Maharashtra

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Abstract

INTRODUCTION

Ending AIDS by 2030 is a global target, to which India is a signatory. HIV self-test (HIVST) coupled with counselling and AIDS-care, including antiretroviral therapy, has the potential to achieve this. However, countries are at varying stages of acceptance of HIVST as discussions around introducing it in national program sparks controversy and debates. HIV self-test, as yet, is not part of the AIDS control program in India. Against this backdrop, we explored acceptability of an HIV oral self-test (HIVOST) among truckers and young men and women.

METHODS

A qualitative investigation with 41 in-depth-interviews and 15 group discussions was conducted among study participants in the district of Pune, in the western state of Maharashtra, India. These interactions were built around a prototype HIVOST kit, which was placed before the study participants to help taking the discussions forward. The software N-vivo (version 11.0) was used to manage the volumes of data generated through the aforementioned process. The study period spanned from June through December, 2019.

RESULTS

While the truckers belonged to the age bracket 21-67 year, the youths were in the age group 18-24 year. 'Ease of doing HIVOST' and 'fear of needle pricks' were the reasons for expressing acceptance around HIVOST by both the study groups. Truckers felt that HIVOST would encourage one to know one's HIV status and seek help as appropriate. Accuracy of HIVOST result and disposal of the kits following use were concerns of a few. Most of the participants preferred saliva over blood as the specimen of choice. Instructions in local language reportedly would enable test-use by self. The truck drivers preferred undertaking HIVOST at the truckers-friendly 'Khushi clinics' or in the vehicle, while youths preferred the privacy of home. Some of the young men mis-perceived the utility of HIVOST by referring to doing a test on a partner immediately prior to sexual encounter. Some of the truckers had myths and misconceptions about routes of HIV transmission and treatment.

CONCLUSIONS

Overall, the study communities expressed their acceptance towards HIVST approach. The National AIDS Control Program, India could draw upon the findings of the current study.

Introduction

The HIV epidemic in India is concentrated among the key population groups namely female sex workers (FSW), people who inject drugs (PWID), men having sex with men (MSM) and transgender community (TG) (1). This has been the case since the early days of the epidemic barring six states (Andhra Pradesh,

Tamil Nadu, Maharashtra, Karnataka, Manipur and Nagaland) (2), where a generalized spread of the virus was witnessed. More than 1% antenatal clinic (ANC) clinic attending women, representing general population were detected with HIV in these states indicating wider spread of the virus beyond most at risk population (MARPs) groups. (3) Based on such observations, the targeted intervention (TI) programs were directed, in most part of the country, towards MARPs groups. In the long run such approach has been evaluated to be cost effective (4). Overall goal of the TI- programs in various states was to reduce the vulnerability of the above cited population groups to HIV and other sexually transmitted infections (STIs) and to establish a link with HIV care as needed.

Risk of bridge population such as long distant truckers, migrant workers and other clients of sex workers to HIV was also recognized. Interventions were developed to address their vulnerabilities as well. The relevance of this approach was underlined by the epidemiologic link, which was established behind spread of HIV from MARPs groups to general population (5). However, HIV intervention focus, directed towards bridge population is now not as intense as it used to be earlier. Decreasing HIV prevalence in India in the recent past during 2005 to 2010 might be contributing to such reduced attention (6). What is of concern though, is the plateauing in reduction of HIV that became discernible during 2010–2015 (7). Also noteworthy is that approximately 69,000 new HIV infections in India were estimated to occur in 2019 (8). Considered together, these information underline that, not only residual risks exist in the country for different individuals, but also appropriate HIV intervention measures need to be developed to address them. Failing to do so will negatively impact upon the targets of 95:95:95 to be achieved by 2030. Such targets require 95% of the people living with HIV knowing their status, of whom at least 95% would be linked with anti-retroviral therapy (ART) and 95 % of those on ART would achieve undetectable HIV viral load (9). Against this backdrop, the present investigation was carried out with a particular focus on truck drivers and young adults as study population and HIV self-test as an intervention tool.

Vulnerability of truck drivers to HIV emerges from them being away from home and their regular sex partners. Keeping such vulnerabilities into consideration, the National AIDS Control Program (NACP) established drop-in-centers specifically at truck halt points (10). HIV awareness program, testing, care facilities for sexually transmitted infections (STIs) and creating an enabling environment constituted the bouquet of services offered from these TI- sites (10). Despite such initiatives, delayed linking of truckers to HIV test and treatment has been noted (11). As with truckers, although adolescents and young adults are not considered as one of the MARPs groups, their vulnerability to HIV in India has been documented. Such vulnerabilities of the youths arise either from their patronage to female sex workers or exploration in unsafe drug use practices (12). HIV self-test has the potential to play a key role for these population groups where the threat of infection does not appear obvious to individuals.

The World Health Organization (WHO) defines HIV self-test as a process in which a person collects his or her own specimen (oral fluid or blood) and then performs a test and interprets the result, often in a private setting, either alone or with someone he or she trusts (13). Different countries are in varying stages of acceptance of HIV self-test. Implementation of HIV self-test is still not without controversy and debate. While, several countries have already introduced or are contemplating introduction of HIV self-test as part

of their national strategic plans, India, at present, is yet to do so (14). Against this background, we undertook this study to assess the acceptability of HIV oral self-test (HIVOST) among truck drivers and young adults.

Methodology

This qualitative investigation was carried out in the Western Indian district of Pune, Maharashtra, during June to December 2019. Approval from the Institutional Ethics committee (IEC) of the Indian Council of Medical Research-National AIDS Research Institute (ICMR- NARI) was obtained. Prior to initiating in-depth-interviews (IDIs) and group discussions (GDs), written informed consent was obtained from each of the participants. INR 150 (2.5\$) per person was provided at the end of each session for compensation of travel. While presenting data, we have used pseudonyms in this article to maintain confidentiality of the participants. Participants aged 18 year or above, were enrolled. An HIV oral-self test (HIVOST) kit named Morcheck, a product of Morsef Lifesciences Private Limited and manufactured by Bhat Biotech Private Limited was used as a prototype to facilitate interactions around it.

Gaining access

Sevadham Trust is a Civil Society Organization (CSO) that works as a TI-partner of the Maharashtra State AIDS Control Society and reaches out to the truckers and migrant workers with HIV intervention. The organization has been working for this cause in Pune for the last two decades. A field assistant from Sevadham worked towards organizing IDIs and GDs with truckers.

In order to recruit young adults in the study, local youth clubs were contacted. Additionally, a computer training centre, managed by a private information technology (IT) solution company, was engaged for recruitment of youths. Some of the women participants were recruited through self-help groups (SHGs) working for income-generation activities. Other gatekeepers engaged in recruitment of young adults in the current study were community influencers including a primary school teacher. Those participating IDIs were not invited for GDs.

Data collection tools

The guides and probes used during the in-depth- interviews and group discussions were prepared following interaction with the ICMR-NARI team members. The tools underwent trial sessions and were modified for ease of comprehension and correctness of content (Supplementary file 1). The following issues were explored; 'health seeking behaviour', 'prior HIV test experience', 'choice of HIV self-test', 'perceived advantages and disadvantages and apprehensions'. Information was also collected pertaining to the packaging of the kits, presentation, information to go with the kit, how to do instructions and preferred kit outlets.

Data collection

Truckers were initially enrolled from Nigdi transport area, located in the Pimpri-Chinchwad Municipal Corporation area of Pune. As response saturation was identified following 8 IDIs and 2 GDs with truckers in this location, other trans-shipment areas namely, Telco Campus and Moshi were selected. IDIs and GDs were conducted either at the transport offices or in a temple premise identified by the field workers. Privacy was maintained at these sites; a total of 16 in-depth-interviews (IDIs) and 6 groups discussions (GDs) were completed.

Twenty-five IDIs (12 with young women and 13 with young men) and 9 GDs (4 with young women and 5 with young men) were conducted with youths. Most of the IDIs and GDs took place either at rented locations or community halls or residence of the participants or project office premise as preferred by the participants. It was ensured that no observing bystander was present during these sessions.

Data analysis

All interview and group discussion sessions were audio recorded and transcribed exact verbatim in Marathi or Hindi by the study investigators. Transcribed data were then translated in English. Data analysts subsequently checked for the quality of translation, took corrective measures as necessary, and then initiated data coding along with the field investigators and supervisors. A codebook was developed, which helped in identifying the existing themes. N-vivo software (version 11.0) was used to help in organizing the responses.

Results

Profile of the participants - truckers

While some of the truckers were in long-distance travel across the country, movements of others were limited to the State of Maharashtra. All the IDI participants among truckers were married and belonged to the age group 21 to 67 year. While one of them was a science graduate, six had primary school level education, 4 had studied till 10th standard and the remaining 5 had completed 12th standard of school education. Each of the interviews lasted for 50-85 minutes. Each focus group with the truckers had 5 to 6 participants and most of the discussions persisted about an hour; the longest taking 1 hour and 40 minutes. The discussants belonged to the age group 21-55 year; most were married and the level of school education varied from 3rd to 12th standard.

Profile of the participants - youths

Majority of the women interviewees had secondary school education and some completed graduation. Among 13 young men, 3 did not have school education beyond higher secondary (12th standard) and four had completed graduation in different subjects such as arts, science and engineering. Five others were continuing graduate studies. Four GDs were held with young women (3 groups constituted by unmarried women and 1 by married women). Each of these GDs lasted for about 45 minutes and involved 5 to 6 participants. The discussants belonged to the age group 18-23 year.

Participating young men were unmarried; each of the five GDs with them persisted for about 65 minutes. The discussants belonged to the age group 18-23 year. Their level of school education varied from 10th standard to graduation. In – depth interviews with women persisted for 50 minutes to 1 hour, while interviews with men lasted for 30-50 minutes.

Prior HIV test experience

Majority of the truckers had undergone HIV test; some at 'Khushi clinics' - an initiative by the Transport Corporation of India Foundation aiming to reduce spread of HIV and other STIs among long distant truck drivers. Others took HIV test at government hospitals. While overall experience in the former setting was positive, hurdles were faced by some in government settings. 'Apprehension of getting identified while seeking HIV test from public health facilities' and 'spread of such information within the groups of truckers' were associated concerns.

All married women IDI-participants (during pregnancy) and 2 unmarried women had HIV test experience. A few women members in GDs had prior HIV test experience as well. Contrastingly, among the male participants, only one interviewee and 2 discussants reported experience of prior HIV test.

Difficulties faced by women during HIV test were of varying nature such as pain associated with needle prick during blood drawing, panic associated with the volume of blood drawn, fear of unknown as HIV test was undertaken for the first time and the hassle of detour from one department to another in the hospital. Negative attitude of some of the health care providers was another concern.

"That you know – take blood from finger, take blood from vein – I had much trouble – take a lot of blood – they remove blood until tears come in eyes I had never taken HIV test before delivery – but during pregnancy they took a blood sample... but then I was scared a bit"

- Suna, 24 year (YG02)

Myths and Misconceptions around HIV

Interviews unravelled the range of mis-information truckers had on HIV transmission and treatment. Reportedly, a newspaper in Osmanabad (an administrative district in Marathwada region in the state of Maharashtra) published a story on an HIV infected individual getting cured following consumption of pesticides used on cotton plants. An incident of HIV cure by snake venom was narrated by another trucker.

Advantages of HIV oral self- test

Most of the truck drivers felt that HIVOST would benefit them and a few of them opined that availability of such a kit would lead to increased detection of infection and further linkages with anti-HIV treatment facilities. Vulnerability of the truck drivers to HIV and other diseases were highlighted during these

sessions, and 'confidentiality' as well as 'convenience of doing the test by self' were perceived as merits of HIV self-test.

"The advantage is that if we have any information then we will implement.... If we have to walk on the road and we know the direction of the road then only we will reach... if we do not know the direction of the road then we will get lost ... that is why I have interest in it"

- Duey, 61 year (TR04)

"...as many drivers are there, they all will get benefit...actually, means driver line is such that people have to go outside for work ...all these diseases happen mostly to driver people...mainly drivers are targeted... It (HIV self-test) will be useful for us ... it will be very useful for those in this field"

- Suaj, 57 year (TR14)

HIV oral self-test (HIVOST) concept was greeted by most of the young adults during IDIs and GDs. Long queue, fear of getting identified by somebody known, stare from people, and fear of breach of confidentiality at HIV testing centres were the reasons cited by young men to welcome HIVOST. Some even indicated that HIVOST would enable one to take the test at home and highlighted the ease of using it.

"Because we can do it easily... because saliva is in our mouth, we can easily do the test, blood is in our body... we have to withdraw it. And some people are scared of blood that is why saliva is comfortable"

- Gash, 18 year (YB08)

Advantage of using oral saliva-based test in children was highlighted by a married woman, while another woman elaborated upon hesitation to discuss HIV even with a doctor and highlighted the advantage of HIV self-test from such perspective. Women participants, without prior HIV test experience, reflected upon their social interactions and highlighted how HIVOST could be helpful. Situations cited by them encompassed young boys and girls contemplating sex, pre-marital HIV test and familial level disputes. Some of the young men mentioned that HIV self-test should be deployed in brothels and lodges before engaging in sex.

Specimen of choice

Saliva was preferred over blood by both the truck drivers and youths. 'Ease of using saliva as test specimen', 'lack of knowledge on how to draw blood', 'quick results', 'ability to do the test by self' and 'fear associated with needle prick' were cited advantages. Young women preferred HIVOST compared with the traditional blood-based HIV test conducted in laboratories or hospitals; a few of them did not express any preference for clinical specimen, and very few preferred blood over saliva.

In two of the group discussions with young men; rare viewpoints such as presence of HIV in the blood and unknown accuracy of saliva-based test were put forth as justification to choose blood over saliva.

The other rare justifications were blood being internal (core) element of the body would capture the presence of the disease at an early stage and possibility of using the blood specimen taken for HIV test to conduct other investigations such as CD4 count.

Apprehensions around HIVOST

We grouped potential harms as perceived by the participants in three categories, a) societal, b) environmental and c) individual. None of the youths during IDIs or GDs flagged societal harm as an issue that could arise following introduction of HIVOST. A few though talked about judgmental attitude of the society towards HIV.

“Means, as now what I said as the logo is very famous (HIV logo in the form of a red ribbon) because where ever HIV word come ... at that place, this ribbon comes ..., so basically this logo belongs to this (HIV). So may be someone notice this, so the person in front quickly start to think that person has done something. So, he needs this product. Sometime people do not think, that why are you doing this – Means when a person sees something in front of him, so he quickly starts to think about it and start thinking about it in his mind”

- Shpa, 23year (YG 04)

“If we share about it with friends that I have such and such problem... even he is very close to us, he may have friends to whom he can tell ... that your HIV test result is so and so... then people start looking at you in a different way. And due to this fear, one cannot talk about it (test) or one avoids to take this test”

- Roan, 21 year(YB01)

Possibility of getting into depression leading to self-harm or reluctance to seeking treatment following positive HIV result were apprehensions raised by some of the youths. Anxiety related to HIV positive test result was obvious through the responses of a few truckers; another viewed HIV positive test result as something like the end of the world. These were not specific to HIVOST though.

They will be demoralized as soon as they get to know ... first and foremost they would get demoralized. Sometimes, they would say that they don't even want the tablets ... since now, I have got the disease ... I don't need to take the tablets ... it's better to die ... if society comes to know about it tomorrow that I have got this ... then who do I face ... what would I tell people at home”

-Isa, 47 year(TR05)

Young men also brought up issues such as 'leakage of information' and 'forced testing during marital negotiation'. 'Accuracy of HIVOST result' was another concern raised by men and women participants. Very few participants expressed that pranks could be played with HIV self-test.

“.....if I want to get someone into trouble – if I want to demoralize someone I will do someone's HIV test... one who is HIV positive and push it on you... and say you are HIV positive... then in your mind you'll have

doubts about HIV - you will be demoralized a little bit – the freshness that you had or that you were so free – you will not remain that free – in your mind there will be continuous worry”

- Psad, 21year (YB 07)

A few youths were concerned about safe disposal of the test kits, failing which could result in environmental pollution.

“Little bit it will affect the environment, and also pollution will take place – because we throw it in the garbage – basically there is not one as such – if you go to their work place and see that they set it on fire, and from that air pollution is caused, so that one thing will”

-Shpa, 23 year (YG04)

A few truckers were also concerned about disposal of test kits vis-à-vis environmental pollution. Inappropriately disposed self-test kits in the garbage was seen by another truck driver as an issue concerning others' health. A rare point of view was raised pertaining to the fluid (reagent) in the tube that comes with the HIVOST-kit, by a truck driver from Punjab. He mentioned that the fluid could be used for injections by drug users while, a young participant assumed that the fluid might contain acid and could be poured on to someone to cause harm.

Kit Considerations

Participants were shown various components of the HIV self-test kit and the package insert with pictorial diagrams on 'how-to-do' steps. The following domains pertaining to the kit were explored; a) packaging, b) instruction leaflet, c) kit outlet, d) cost consideration, and e) information to go with the kit (table 1). A few of the youths expressed that the kit should have been smaller in size for carriage convenience. Most of the participants wished to see HIV symbol on the kit. It was further suggested that the instructions should be presented in local language for easy comprehension.

Table 1 : KIT CONSIDERATIONS

DOMAINS	QUOTATIONS
PACKAGING	<p><i>"Kit looks a little big, sir ... It should be a little small ... one that can easily fit in the pocket"</i></p> <p>-A truck driver from group discussion</p> <p>(GD- TR 04)</p> <p><i>Name is written means - name should be written only. For what it is -it should be known only"</i></p> <p>- Prik, 23 year(YB11)</p>
HOW TO DO IT - INFORMATION	<p><i>"I would like to know if someone explains. But if pictures are displayed in a different way then it's okay.If it is shown in hospitals how to do it, it would be much better. If explained in local Marathi language then it would be of benefit"</i></p> <p>- Igat, 45 year (TR11)</p> <p><i>"As you can see in "Save the girl child and educate her (Beti bachao,Beti Padhao)on the television... in the same way it (HIV self-test) also happen... it should happen for this (HIVOST). That means every home...it should be known that there is such kind of thing is there. While sitting at home you can check / test. For this more advertisement should be made"</i></p> <p>- Shpa, 23 year (YG04)</p>
ACCESS POINTS	<p><i>"It should be available everywhere – at Dhaba, at Pan Stall. It should be made available in the hospitals and even at your office – your department – It should be available in all these places"</i></p> <p>- Diar, 43 year, (TR12)</p> <p><i>"Even at schools and colleges – as youths must be aware - It is very good for young people. They should be aware of such things"</i></p> <p>- Prla, 23 year,(YG11)</p>
COST	<p><i>"If it is kept for free then it would not be so much – people would not understand its importance – so at least some price should be kept"</i></p> <p>- Nene, 28 year(TR07)</p> <p><i>"If free, the one who is in need will take it and the one who does not need it will also take it."</i></p> <p>-A young boy from group discussion</p> <p>(GD-YB03)</p>

Most of the youths considered taking HIVOST at home or in the bedroom as appropriate, so that privacy was maintained, while truckers preferred taking it at 'Khushi clinics' or in the vehicle. Easy availability of the kits at various halt points such as 'toll nakas' and 'dhabas', were the felt needs of the truck drivers and youths recommended making kits available at schools and colleges. Wastage and mischievous use of

kits, when made available free of cost, were the apprehensions of the youths and truck drivers. The suggested cost for a kit ranged from INR 10 to INR 400.

Discussion

This qualitative investigation explored issues around HIV self-test from the perspectives of truckers and youths; two vulnerable population groups in India. The country is committed to the global goal of 'ending AIDS by 2030' (15) and the National AIDS Control Program (NACP) in India is working towards it. However, the major challenge is to encourage people to know their own HIV status so that those who are infected and yet unaware, could be brought under the folds of anti-retroviral treatment. A systematic review of 23 studies by Figueroa et al. reported high acceptability of HIV self-tests among key populations comprising of MSM, FSW, transgender people, PWID and people in prison (16). The issue nonetheless has not been studied adequately among certain vulnerable populations such as youths and truck drivers. The present study, being qualitative in nature and examining acceptability of HIVOST, therefore stands out as an important initiative.

Both truckers and youths, during our inquiry, welcomed HIV self-test. Truck drivers from Hyderabad in Andhra Pradesh accepted oral HIV self-test as an innovative HIV intervention approach. Most of the truck drivers were even willing to undertake an HIV self-test when available (17). Studies focusing on HIV self-test among youth in India are sparse. A qualitative study from Malawi and Zimbabwe among 16- to 25-year-old reveals that HIV self-test was preferred provided it was available free or at low cost (18).

In the current investigation, saliva-based HIV self-test was preferred over blood. The reasons cited were fear of needles and ability to do the test by self. A study conducted among in-patients and out-patients at the rural teaching hospital in Sevagram, Maharashtra recorded preference for oral-fluid over the blood-based HIV self-test among this population group (19). However, scepticism on accuracy of HIVOST and the need for establishing linkages with post-test counselling services were expressed by some of our participants as was noted by other researchers (20,21,22).

The present investigation revealed the discomfort of the participants to go to government hospitals for HIV testing; loss of privacy and risk of breach of confidentiality were the concerns. Contrastingly, truckers undergoing HIV test at Khushi clinics, located at trans-shipment sites, found the arrangement user-friendly. Woodford et al elaborated upon the barriers to HIV testing at individual, inter-personal, socio-structural and health care levels among the MARP groups in Chennai, Tamil Nadu. Stigma associated, not only with the disease, but also HIV-test per se was cited as hindrance to access test services. Participants in this study also feared discrimination from the community and society, which delayed their access to HIV-tests. Timings, long queue, extended waiting period were other deterrents for accessing these facilities (23), which were similar to our findings. Noticeably, except young married women (who got tested for HIV during ante-natal check-up), most of the youths in our study did not have a prior HIV test experience.

Truckers, in the current investigation, preferred obtaining instructions on HIVOST through live demonstration or video clippings and youths wished to have them in local languages. Some of the youths erroneously felt that HIVOST could be used as a diagnostic test rather than a screening tool. On the other hand, a few truckers subscribed to the myths and mis-conceptions around HIV treatment. Given that the truckers spend time in groups at halt points wrong information could spread through words of mouth, interventions to dispel them appeared important. Studies published nearly a decade ago, similarly highlighted misconceptions prevailing among truck drivers (24) and recorded them also among young adults (25). While those misconceptions in truckers were mostly about mode of transmission of HIV, youths believed that HIV could be cured and a vaccine was available.

During the current inquiry, the truck drivers wished that they could get HIV self-test kits at common halt points; reportedly, they would prefer using them either at the trucker-friendly-clinics (such as Khushi) or in the vehicle. A study from Kenya, among truck drivers recruited from wellness clinics, highlighted that those who had never undertaken an HIV test would prefer HIV self-test (26). Young adults in our study mentioned that they would prefer taking HIV self-test at home in privacy. This was similar to the findings emerging from South Africa. In Mozambique, adolescents preferred taking the test at youth-friendly clinics (27, 28,29).

Conclusion

We conclude that HIV self-test will have acceptability among truckers and young adults in Indian setting. The participants expressed their enthusiasm to use such a test as the results could be quickly obtained and one could do the test on his or her own. However, it will be necessary to address the apprehensions associated with HIV self-test and pair such initiative with interactive strategies to mitigate misconceptions around HIV. Community voices captured through the current qualitative investigation indicate towards such programmatic direction.

Abbreviations

CSO

Civil Society Organization; FSW:Female Sex workers; GD:Group Discussion; HIV:Human Immunodeficiency Virus; HIVST:HIV self-test; HIVOST:HIV oral self-test; IEC:Institutional Ethics Committee; ICMR-NARI:Indian Council of Medical Research-National AIDS Research Institute; IDI:In-depth-interviews; IT:Information Technology; MARP:Most at risk population; MSM:men having sex with men; NACP:National AIDS Control Program; PLHIV:People Living with Human Immuno-deficiency; SHG:Self Help Group; STI:Sexually Transmitted Infections; TI:Targeted Intervention; TR:Truckers; UNAIDS:Joint United Nations Program on HIV/AIDS; WHO:World Health Organization; YB:Young Boys; YG:Young Girls

Declarations

ETHICS APPROVAL

This study was approved by Institutional Ethics Committee of ICMR-NARI (NARI /EC/ Approval /2019/259 dated 8/3/2019)

CONSENT TO PARTICIPATE

This study was performed in line with the principles of the Declaration of Helsinki. Written informed consent was obtained from all the participants

CONSENT FOR PUBLICATION

Not applicable

AVAILABILITY OF DATA AND MATERIAL

Due to the sensitive nature of the questions asked in this study, survey respondents were assured raw data would remain confidential and would not be shared

CONFLICTS OF INTEREST/COMPETING INTERESTS

The authors declare that there is no conflict of interest.

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CODE AVAILABILITY (software application or custom code)

Nvivo Version 11.0 has been used

AUTHORS' CONTRIBUTIONS

AR: Investigation, analysis, validation & writing draft; SP: Investigation, analysis, validation & writing draft , PPK :Analysis & quality check of the interviews; ASD: Analysis & quality check of the interviews; SSB: Investigation & validation; DDU: Investigation & validation; RA: Supervision & project administration; SP: Conceptualization, supervision, project administration, analysis & writing draft . All authors read and approved the manuscript.

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References

1. National AIDS Control Organization, Ministry of Health and Family Welfare, Government of India. National Strategic Plan for HIV/AIDS and STI 2017-2024: paving way for an AIDS free India, 2017, New Delhi.
2. India: epidemiological fact sheet on HIV/AIDS and sexually transmitted infections; 2004 update: treat 3 million by 2005. https://data.unaids.org/publications/fact-sheets01/india_en.pdf [Accessed on 11th Mar 2021].
3. Ramachandran P. ICMR's tryst with HIV epidemic in India: 1986-1991. *Indian J Med Res* 2012;136:13-21
4. Prinja S, Bahuguna P, Rudra S, Gupta I, Kaur M, Mehendale SM, et al. Cost effectiveness of targeted HIV prevention interventions for female sex workers in India. *Sex Transm Infect.* 2011 Jun;87(4):354-61. doi: 10.1136/sti.2010.047829. Epub 2011 Mar 29. PMID: 21447514.
5. Parkhurst JO. Structural approaches for prevention of sexually transmitted HIV in general populations: definitions and an operational approach. *J Int AIDS Soc.* 2014; 17(1):19052. Published 2014 Sep 8. doi:10.7448/IAS.17.1.19052
6. National AIDS Control Organization, Ministry of Health and Family Welfare, Government of India. Mid-Term Appraisal of National AIDS Control Program: Phase IV: Technical Report, 2016, New Delhi
7. National AIDS Control Organization, Ministry of Health and Family Welfare, Government of India. HIV Estimations Report 2017: Technical Report, 2018, New Delhi.
8. National AIDS Control Organization & ICMR-national Institute of Medical Statistics, Ministry of Health and Family Welfare Government of India. HIV Estimations Report 2019: Technical Report, 2020, New Delhi.
9. Fast-Track - Ending the AIDS epidemic by 2030. UNAIDS. https://www.unaids.org/sites/default/files/media_asset/JC2686_WAD2014report_en.pdf. [Accessed on 11th March 2021]
10. National AIDS control Organization. Ministry of Health & Family Welfare. Targeted Intervention for Truckers -Operational Guidelines. Volume 2.
11. Sharma V, Saggurti N, Bharat S. Health care coverage among long-distance truckers in India: an evaluation based on the Tanahashi model. *HIV AIDS (Auckl).* 2015 Mar 23;7:83-94. doi: 10.2147/HIV.S76416. PMID: 25848319; PMCID: PMC4376185
12. Anita Nath (2009) HIV/AIDS and Indian youth - a review of the literature (1980 – 2008), SAHARA-J: Journal of Social Aspects of HIV/AIDS, 6:1, 2-8, DOI:10.1080/17290376.2009.9724923
13. World Health Organization. Guidelines on HIV self-testing and partner notification: Supplement to consolidated guidelines on HIV testing services. Geneva: WHO; 2016. [Accessed 11th March 2021]
14. Rao A. HIV self-test during the time of COVID-19, India. *Indian J Med Res* 2020;152 :164-7.
15. United Nations Programme on HIV/AIDS. UNAIDS 90-90-90. An ambitious treatment target to help end the AIDS epidemic by 2030. [Accessed 11th March 2021]

16. Figueroa C, Johnson C, Verster A, Baggaley R. 2015. Attitudes and acceptability on HIV self-testing among key populations: a literature review. *AIDS Behav* 19:1949 –1965.
<https://doi.org/10.1007/s10461-015-1097-8>
17. Prem Kumar SG, Anil Kumar G, Poluru R, Schneider JA, Dandona L, Vemu L, et al. Contact with HIV prevention programmes & willingness for new interventions among truckers in India. *Indian J Med Res* June 2013; 137:1061-1071.
18. Indravudh PP, Sibanda EL, d'Elbée M, Kumwenda MK, Ringwald B, Maringwa G, et al. I will choose when to test, where I want to test': investigating young people's preferences for HIV self-testing in Malawi and Zimbabwe. *AIDS*. 2017 Jul 1;31 Suppl 3(Suppl3):S203-S212. doi: 10.1097/QAD.0000000000001516. PMID: 28665878; PMCID: PMC5497773.
19. Pai Pant N, Joshi R, Dongra S, Taksande B, Kalantri SP, Pai M, et al. Evaluation of diagnostic accuracy, feasibility and client preference for rapid oral fluid based diagnosis of HIV infection in rural India. *PLoS ONE* 2(4): e367.
20. Sarkar A, Mburu G, Shivkumar PV, Sharma P, Campbell F, Behera J, et al. Feasibility of supervised self-testing using an oral fluid-based HIV rapid testing method: a cross-sectional, mixed method study among pregnant women in rural India. *J Int AIDS Soc* 2016; 19(1):20993. DOI: 10.7448/IAS.19.1.20993
21. Njau B, Ostermann J, Brown D, Muhlbacher A, Reddy E, Thielman N. HIV testing preferences in Tanzania: a qualitative exploration of the importance of confidentiality, accessibility, and quality of service. *BMC Public Health* 2014; 14:838. DOI: 10.1186/1471-2458-14-838
22. Lee VJ, Tan SC, Earnest A, Seong PS, Tan HH, Leo YS. User acceptability and feasibility of self-testing with HIV rapid tests. *J Acquir Immune Defic Syndr*. 2007; 45(4):449–453. DOI: 10.1097/QAI.0b013e318095a3f3
23. Woodford MR, Chakrapani V, Newman PA, Shunmugam M. Barriers and facilitators to voluntary HIV testing among communities at high risk of HIV exposure in Chennai, India. *Glob Public Health* 2016; 11:363-379.
24. Chaturvedi S, Singh Z, Banerjee A, Khera A, Joshi R K, Dhruvajyoti D. Sexual Behaviour Among Long Distance Truck Drivers. *Indian Journal of Community Medicine*. 2006; 31(3).
25. Agrawal, HK, Rao, RS, Chandrashekar, S and Coulter, JB. Knowledge of and attitudes to HIV/AIDS of senior secondary school pupils and trainee teachers in Udupi District, Karnataka. *India Annals of Tropical Paediatrics*. 1999. 19; 143-149.
26. Strauss M, George G, Lansdell E, Mantell JE, Govender K, Romo M, et al. HIV testing preferences among long distance truck drivers in Kenya: a discrete choice experiment. *AIDS Care*. 2018; 30(1): 72–80. DOI: 10.1080/09540121.2017.1367086
27. Kelvin EA, Cheruvillil S, Christian S, Mantell JE, Milford C, Rambally-Greener L, et al. Choice in HIV testing: the acceptability and anticipated use of a self-administered at-home oral HIV test among South Africans. *Afr J AIDS Res*. 2016;15(2):99–108. pmid:27399040

28. Naik R, Tabana H, Doherty T, Zembe W, Jackson D. Client characteristics and acceptability of a home-based HIV counselling and testing intervention in rural South Africa. *BMC Public Health* 2012;12:824. pmid:23009202
29. Hector J, Davies M-A, Dekker-Boersema J, Aly MM, Abdalad CCA, Langa EBR, et al. (2018). Acceptability and performance of a directly assisted oral HIV self-testing intervention in adolescents in rural Mozambique. *PLOS ONE* 13(4): e0195391. <https://doi.org/10.1371/journal.pone.0195391>

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