Feasibility and Acceptability of Symptom Screening of Sexually Transmitted Infections: HPTN 071 (PopART) Trial in Zambia and South Africa

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INTRODUCTION

It is estimated that worldwide there are more than 700 million new infections with viral STIs and 357 million new infections with one of four curable STIs (chlamydia, gonorrhea, syphilis and trichomoniasis) in people between the ages of 15 and 49 years in LMIC (WHO 2016) STIs other than HIV have been outshined in recent years by the intensified public-health attention on HIV treatment, in spite of the solid association between STIs and HIV acquisition. Many high income countries have developed quality services for diagnosis and treatment of STIs. Low and middle income countries (LMICs) lag far behind (WHO 2012). Therefore a syndrome-based approach to the management of STIs was developed and is commonly used in resource-limited settings for the management of common STIs (WHO 2016). Modelling studies have revealed that STIs may have critically contributed in helping HIV to be established in new populations. These studies have also shown that proportion of new HIV infections attribute to STIs remains significant all through the epidemic, although this effect is increasingly due to genital herpes rather than curable STIs (Hayes, Watson-Jones et al. 2010)

The study was to report on the prevalence of STI symptoms and to investigate the association between reported STI symptoms and HIV status during population-level screening in a large HIV test-and-treat intervention. We also report on the individuals who were screened yes for STI symptoms up to the outcome of the clinic visits following referral.

METHODS

HPTN 071 (PopART) is a 3-arm community-randomized trial in 21 communities, 12 in Zambia and 9 in South Africa, to determine the impact of a combination HIV prevention package, including universal HIV testing and treatment, on HIV incidence. Community HIV-care providers (CHiPs) delivered the intervention from 2013 to 2017 in 14 intervention communities. Services were offered to all households in the community and included HIV counselling and testing, TB symptom screening, condom provision, referral for male circumcision and STI symptom screening. CHiPs referred participants for HIV-care and treatment, TB-diagnosis and treatment, STI services and male circumcision if needed. All households were visited at least once per year (annual round). Within an annual round visits were made to follow up household members who missed the first CHiPs visit, for those who did not complete the intervention or for individuals that were referred for health services at the clinic. Three annual rounds were conducted during the intervention period 2013-2017. We report on the last (3rd) annual round.

Verbal consent was obtained for individuals 18 years and older, for those <18 verbal consent and assent was obtained . For those aged 15 years and above, a standard STI screening tool was delivered to identify signs or symptoms suggestive of an STI (presence of genital sores/growth, vaginal/urethral discharge, dysuria, lower abdominal pains), If the individual answered yes to one or more of the symptoms then he/she was referred to the local primary health care facility for further investigation and STI care. Individuals were also tested for HIV. Those self reported HIV positive but not in HIV care, and those testing positive for HIV were referred to the clinic for HIV care and treatment. One month after referral the CHiPs attempted to revisit the home and follow up on the client.

Data was collected in an electronic Data Capture (EDC) to monitor services delivered at the household, including data on the STI symptomatic screening. We used multivariate random effects logistic regression modelling to estimate adjusted odds ratio's with any symptom of STI reported as dependent variable. Explanatory variables were limited to those variables collected by CHiPs. To account for variation in CHiP's performance, CHiPs zone was added as a random effect.

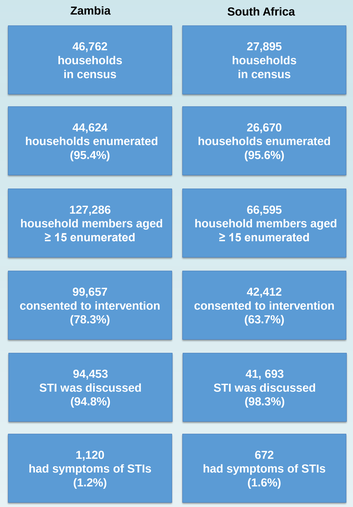
We considered knowledge of HIV status, sex (male and female), and whether there was previous participation in the intervention as additional factors of analytical interest in this sub study of the full trial, we used arm A data for both countries.

We report results of STI symptom screening for 7 out of 14 intervention communities (arm A communities) for the period September 2016 to December 2017. In arm A communities the full PopART intervention package was offered including immediate HIV treatment.

CHiPs in the community delivering the intervention from door-to-door

RESULTS

Figure 1: Flow chart showing number of individuals ≥15 years and those screened for STIs



Overall over 95% of the households in the community were enumerated. In Zambia we listed on average 2.85 household members of 15 years or older in a household (127,286/44,624) compared to 2.50 household members (66,595/26,670) in SA. The consent rate was higher in Zambia than SA (78.3% versus 63.7%). STIs were discussed with almost all participants (94.8% in Zambia and 98.3% in SA). A typical counselling session took approximately between 15 to 30 minutes per participant, of which on average 3 minutes was spent on the STI screening.

Table 1: Factors associated with STI-Symptoms

Zambia	Screened	Symptomatic	%	OR	P
Total	94,453	1,120	1.2%		
Sex					<0.211
Male	40,487	455	1.1%	1.00	
Female	53,966	665	1.2%	1.10	
HIV					<0.001
Test HIV- with CHiP	68,111	782	1.1%	1.00	
Self reported HIV+	10,188	171	1.7%	1.40	
Tested HIV+ with CHiP	2,090	102	4.9%	3.14	
Not tested with CHiP	14,064	65	0.5%	0.43	
Age					<0.001
15-19	16,868	129	0.8%	1.00	
20-24	20,681	312	1.5%	1.94	
25-29	15,506	260	1.7%	2.04	
30-34	11,679	141	1.2%	1.43	
35-39	8,945	109	1.2%	1.38	
40-44	6,484	59	0.9%	1.05	
>=45	14,290	110	0.8%	1.01	
Previously participation					<0.001
No	37,903	579	1.5%	1.00	
Yes, no prev. report STI	53,832	486	0.9%	0.67	
Yes, prev. reported STI	860	41	4.8%	2.63	

SA	Screened	Symptomatic	%	OR	P
Total	41,693	672	1.6%		
Sex					<0.001
Male	17,559	238	1.4%	1.00	
Female	24,134	434	1.8%	1.54	
HIV					<0.001
Test HIV- with CHiP	23,410	452	1.9%	1.00	
Self reported HIV+	4,971	73	1.5%	0.69	
Tested HIV+ with CHiP	652	48	7.4%	3.24	
Not tested with CHiP	12,660	99	0.8%	0.41	
Age					<0.001
15-19	5,057	68	1.3%	1.00	
20-24	7,539	172	2.3%	1.61	
25-29	7,278	139	1.9%	1.36	
30-34	6,511	101	1.6%	1.14	
35-39	4,643	85	1.8%	1.41	
40-44	3,530	43	1.2%	0.89	
>=45	7,135	64	0.9%	0.69	

Table1 shows that among those screened, 1.5% (1,992/136,146) reported STI symptoms. Prevalence of STI symptoms was higher in South Africa 1.6% than Zambia 1.2% (p=0.0031), and commonest among the 20-24 age-group in South Africa (2.3%) and among 25-29 age-group in Zambia (1.7%). Prevalence was similar in both males and females in Zambia, but higher in females in South Africa (OR 1.54, $p < 0.001$). Those testing HIV-positive by CHiPs were more likely to report STI-symptoms than those testing HIV-negative (OR 3.14 in Zambia, OR 3.24 in South Africa) Symptoms of STIs were lower in those who previous participated in the intervention (0.9%) than those participating for the first time (1.5%) in Zambia.

RESULTS

In Zambia a follow up attempt was made for 730 out of 1120 STI-symptomatic participants (65.2%). Most participants were found at home and agreed to give information on their health seeking behavior. A total of 550 participants reported to have visited the clinic after referral and 453 has been given some form of treatment.

Follow up visits for STI symptomatic participants in South Africa, were made for only 90 out of 672 symptomatic clients and results are not reported.

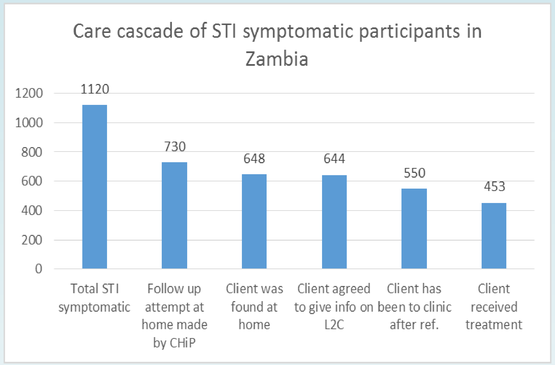


Figure 2: STI symptom care cascade

CHiP entering data in the EDC in the community

CHiP talking to the participant in the community

CONCLUSION

Large scale community-based STI symptom screening by lay counsellors can easily be performed as part of door-to-door service delivery.

The study showed 1.3% prevalence rate for STI symptoms. STI symptom were more common among those newly diagnosed with HIV and more common amongst young adults in both countries. Community members that previously participated in the intervention and were screened negative for STI, have lower odds for being STI symptomatic (Zambia only).

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