Sociodemographic and Behavioural Characteristics of Youth Reporting HIV Testing in Three Caribbean Countries

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ABSTRACT

Objectives: *Human Immunodeficiency Virus (HIV) testing is the gateway to treatment and care of HIV infection, however, little is known about the HIV testing behaviours among Caribbean youth. The objective of this study was to determine the prevalence of HIV testing and to examine associations of HIV testing with sociodemographic characteristics and risk behaviours.*

Methods: *Data were used from nationally representative surveys in three Caribbean countries: Guyana AIDS Indicator Survey 2005−2006; Haiti Demographic and Health Survey 2005−2006 and the Dominican Republic Demographic and Health Survey 2007. Youth 15−24 years who had ever heard of AIDS and ever had sex were selected, yielding samples of 875 in Guyana, 4199 in Haiti and 12 418 in the Dominican Republic. Bivariate tests were conducted to examine the associations between sociodemographic characteristics, risk behaviours and being tested for HIV.*

Results: *The proportion of youth reporting HIV testing ranged from 17% in Haiti to 48% in the Dominican Republic. About 54% of youth in Haiti and less than one-third in the Dominican Republic initiated HIV testing. A greater proportion of females than males had ever tested in each country, ranging from 68% in Guyana to 82% in Haiti. Higher rates of HIV testing were observed among ever married youth and among youth with 2−4 lifetime sexual partners.*

Conclusions: *Males, rural and never married youth were less likely to be tested. Outreach at individual and community levels and public health messages targeting these youth should be implemented. There is also a need to mainstream gender into the design of programmes aimed at increasing uptake of HIV testing. Programmes which assist youth in accurately assessing their risk behaviours are also required to improve HIV testing.*

Keywords: Behavioural characteristics, Caribbean, HIV testing, sociodemographic, youth

Características Sociodemográficas y Conductuales de Jóvenes que Reportan Pruebas de VIH en tres Países Caribeños

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RESUMEN

Objetivos: *La prueba del virus de la inmunodeficiencia humana (VIH) es la vía de acceso al tratamiento y cuidado de los casos de infección por VIH. Sin embargo, poco se sabe acerca de las conductas en relación con la prueba del VIH entre los jóvenes del Caribe. El objetivo de este estudio fue determinar la prevalencia de la prueba de VIH y examinar las asociaciones del VIH con las características sociodemográficas y los comportamientos de riesgo.*

Métodos: *Se usaron datos de encuestas nacionalmente representativas de tres países caribeños: la Encuesta de Indicadores del SIDA en Guyana, 2005–2006; Encuesta Demográfica y de Salud de Haití, 2005–2006; y la Encuesta Demográfica y de Salud de República Dominicana, 2007. Se seleccionaron jóvenes de 15–24 años que habían oído hablar alguna vez de SIDA y alguna vez habían tenido sexo, produciéndose muestras de 875 en Guyana, 4199 en Haití y 12418 en República Dominicana. Se llevaron a cabo pruebas bivariantes para examinar las asociaciones entre las características sociodemográficas, los comportamientos de riesgo, y las pruebas de VIH.*

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Resultados: *La proporción de jóvenes que reportan haber tenido pruebas de VIH, fluctuó de 17% en Haití a 48% en República Dominicana. Aproximadamente el 54% de los jóvenes de Haití y menos de un tercio en la República Dominicana reportaron haberse iniciado en las pruebas de VIH. Una proporción mayor de hembras que de varones se había hecho la prueba alguna vez en estos países, fluctuando de 68% en Guyana a 82% en Haití. Se observaron proporciones más altas de pruebas de VIH entre los jóvenes casados y entre los que habían tenido 2–4 parejas sexuales durante su vida.*
Conclusión: *Los jóvenes varones, casados y de áreas rurales mostraron una menor probabilidad de haberse hecho la prueba. Deben implementarse actividades de extensión individual y comunitaria, así como mensajes de salud pública dirigidos a estos jóvenes. Es también necesario incorporar regularmente consideraciones de género en el diseño de los programas dirigidos a aumentar la disposición a recibir pruebas de VIH. Asimismo, se requieren programas que ayuden a la juventud a evaluar con exactitud sus comportamientos de riesgo, a fin de lograr una mejor participación en la prueba de VIH.*

Palabras claves: Características conductuales, caribeño, prueba de VIH, sociodemográfico, juventud

West Indian Med J 2011; 60 (3): 277

INTRODUCTION

The Caribbean is the second most afflicted region with Human Immunodeficiency Virus/Acquired Immune Deficiency Syndrome (HIV/AIDS) after Sub-saharan Africa (1); yet, in the best case scenario, it is estimated that only 30% of the adult population has been reached with HIV testing and counselling (2) which is considered to be the gateway to effective HIV prevention, treatment and care (3). In 2008, 40% of all new infections occurred among young people (4). Moreover, it is estimated that in the Caribbean, prevalence of HIV ranges between 0.1% and 3.2% among youth aged 15−24 years (5). Youth, especially young women are increasingly being affected and are considered a vulnerable group (4, 5). To develop effective prevention programmes among youth, it is crucial to examine HIV testing behaviours and to identify the factors associated with HIV testing uptake among this vulnerable population.

Global studies indicate that HIV testing is influenced by demographic factors such as gender, age, urban residence, higher education, marital status and socio-economic status (6, 7); behavioural factors such as unprotected sexual intercourse, multiple sexual partners, use of drugs (8); psychosocial variables related to HIV knowledge and awareness, stigma attitudes (9, 10); exposure to HIV media campaigns, exposure to HIV prevention programmes and general access to media (11). Few studies of HIV testing in the Caribbean could be located and none could be found which examined testing among youth 15−24 years. The purpose of this study, therefore, was to examine the prevalence of HIV testing and the characteristics of youth who reported being tested for HIV using a national sample of youth in three high HIV prevalence Caribbean countries: Guyana, Dominican Republic and Haiti.

SUBJECTS AND METHODS

This study was conducted using data collected from three Caribbean countries − Guyana, Dominican Republic and Haiti − with high HIV prevalence. These countries were selected on the basis of availability of comparable and nationally representative datasets. With a population in excess of 9 million and a GDP of US $7b, Haiti is considered to be the poorest country in the Americas (12−13). Haiti's adult prevalence rate of HIV of 2.2% in 2007 is one of the highest in the Caribbean region (14). Dominican Republic, which shares the island of Hispaniola with Haiti, has a population of 9.8 million but is more developed with a GDP per capita of US $46b (13). Its prevalence rate of 0.9% also contributes to it having one of the highest burdens of the epidemic in the region (14). Guyana has a population of about 750 000 and an adult prevalence rate of 2.5% (12, 14). Prevalence of HIV among youth 15−24 years in these countries remains high with rates ranging from 0.6% in the Dominican Republic to 1.7% in Guyana (14, 15).

The data for this study were derived from nationally representative surveys: the Demographic and Health Surveys (DHS) of the Dominican Republic (2007) and Haiti (2005/2006) and the AIDS Indicator Surveys (AIS) of Guyana (2005/2006). Each survey was implemented with technical assistance from a US based firm, ORC (Opinion Research Corporation) Macro which provides technical assistance in conducting DHS and AIS surveys globally. The DHS and AIS both use a stratified, multi-stage cluster sample design to collect nationally representative samples of women aged 15−45 years and men aged 15−59 years. In each country, similar sampling and fieldwork procedures were followed. In the first stage, random samples of clusters were selected from a national sampling frame of districts typically from the national census and at the second stage, samples of households from within clusters were selected. Questionnaires were first administered to heads of households who completed a household schedule which identified all eligible men and women with face to face interviews of all eligible men and women in households being subsequently conducted. Persons were eligible for interview if they were either mem-

bers of the households or visitors. Ethical clearance was not required for this study because it entailed secondary analysis of already collected, publicly available information. Further information on the design and survey methods can be obtained from published country reports and on the DHS websites (16−18). The analysis for this study was limited to youth aged 15−24 years who had heard of AIDS and had ever had sex because several of the independent predictors of testing were only measured for these groups. In each country, the total number of young adults aged 15−24 years in the sample were: 1511 in Guyana, 20 078 in the Dominican Republic and 6821 in Haiti. The ever had sex sample used in this analysis comprised approximately 60% of the total sample of young adults in each country: 875 − Guyana, 12 418 − Dominican Republic and 4199 in Haiti.

The dependent variable is whether the respondent had ever tested for HIV which was measured using the question: "I don't want to know the results but have you ever been tested to see if you have the AIDS virus?" Persons who had ever tested were asked if they had returned for their results. Respondents who had ever tested and returned for results were classified as ever tested for HIV.

Two clusters of variables in this study were: sociodemographic characteristics and sexual behavioural risk factors. Sociodemographic characteristics included gender, age group, marital status, educational attainment and type of area of residence and socio-economic status. Wealth quintiles which were used as a proxy for socio-economic status [poorest, second poorest, middle, fourth richest, richest] were derived by ORC Macro using principal components methodology which was applied to information on ownership of household assets and access to amenities such as drinking water, sanitation facilities, type of material used for flooring and ownership of consumer durables (19). Wealth quintiles were then recoded into a variable called socio-economic status with three categories: low, middle and high with low comprising the poorest and second poorest quintiles, middle – the middle quintile, and high being a combination of the fourth highest and highest quintiles.

Sexual behaviour risk factors included age at first sex, number of lifetime partners, whether condoms were used at first sex, condoms used consistently with last sex partner and recent sexual activity status. Recent sex was defined as having sex within the last four weeks of the survey or not. Other potential risk factors including presence of an STI, alcohol, drug use, transactional sex were examined but were highly skewed since less than 5% of youth reported engaging in such behaviours and were not included in the study.

Univariate and bivariate analyses were performed. Univariate analysis presented the frequencies associated with the prevalence of HIV testing behaviours such as knowledge of test locations, ever tested for HIV, return for results and type of model under which testing was performed. Bivariate analyses using chi-square tests were conducted to describe the characteristics of those who had ever been tested. Levels of significance are presented at $p < 0.001$, $p < 0.01$ and $p < 0.05$. All analyses were performed separately for each country and accounted for the weighting, stratification and clustering of the sample using the survey feature of STATA Release 10 (20) which produced robust measures of association – (chi-squared). In contingency tables, missing cases were omitted and proportions do not always add up to the total sample sizes. Less than 10% of youth did not answer the questions on testing in Haiti (19) and the Dominican Republic (122) so these cases were omitted in contingency tables.

RESULTS

Sample characteristics and prevalence of HIV testing

Approximately 60% of the sample of youths aged 15−24 years had ever had sex. The mean age of youth in the study was approximately 20 years in each country with a standard deviation of 2.6. The proportion of females in the sample ranged from 48% in the Dominican Republic to 64% in Haiti. More than 40% of youth in each country were never married while more than half lived in urban centres (Table 1).

Prevalence of HIV testing and model under which HIV testing was initiated

Overall, the prevalence of HIV testing ranged from 17% in Haiti to 48% in the Dominican Republic (Table 1). Less than 10% of youth who ever tested, never returned for their results. The model under which the last HIV test was initiated is shown in the Figure. The proportion of youth voluntarily seeking their last HIV test or using the voluntary testing and counselling (VCT) model was highest in Haiti (54%) followed by Guyana (42%) and lowest in the Dominican Republic (32%). Provider initiated or opt-out testing, as assessed by the proportion of youth being offered the test by a health provider and accepting, was highest in Haiti (42%); 20% in Guyana and less than 10% in the Dominican Republic. The proportion of youth undergoing mandatory HIV testing was highest in the Dominican Republic (59.4%) with 38% in Guyana and less than one-tenth in Haiti. Testing seemed to be on the increase in Guyana since almost three-fifths of youth had their last test less than one year ago compared to only about half in the Dominican Republic and 55% in Haiti (not shown).

Sociodemographic characteristics of youth ever tested for HIV

Table 2 shows the characteristics of youth who had tested for HIV showing the probability values of the chi-square statistic. Consistent associations were observed between HIV testing and sex, marital status and age group. A greater proportion of females than males had ever tested in each country, ranging from 68% in Guyana to 82% in Haiti ($p < 0.01$). Ever married youth (currently and formerly married) were more likely to have tested than never married youth ($p < 0.01$). In each country, the highest proportion of youth

Table 1: Selected HIV testing and sample characteristics of sexually experienced youth

Selected Characteristics of Youth	Guyana	Dominican Republic	Haiti
Total sample of young adults 15–24 years	1511	20078	6821
Sexually experienced/Ever heard of AIDS sub-sample	875	12418	4199
Ever tested for HIV			
No	63.2 (553)	52.3 (6431)	83.5 (3492)
Yes	36.8 (322)	47.7 (5865)	16.5 (688)
Tested and returned for results			
Yes	93.2	95.2	91.9
No	6.8	4.8	8.1
Sample characteristics of sexually experienced youth			
Sex			
Female	55.3	47.5	63.9
Male	44.7	52.5	36.1
Age			
15–17	17.6	18.9	19.4
18–20	31.3	33.9	35.8
21–24	51.1	47.3	44.8
Mean Age (SD)	20.4 (2.6)	20.0 (2.6)	20.0 (2.6)
Marital status			
Never married	60.6	47.6	53.4
Currently married	34.4	37.9	41.1
Formerly married	5.0	14.5	5.5
Educational attainment			
No education/primary	10.3	41.0	50.8
Secondary/higher	89.7	59.0	49.2
Socio-economic status			
Low	34.6	53.6	30.9
Middle	17.3	19.0	20.0
High	48.1	27.3	49.1
Type of area of residence			
Urban	51.9	59.1	52.7
Rural	48.1	40.9	47.3

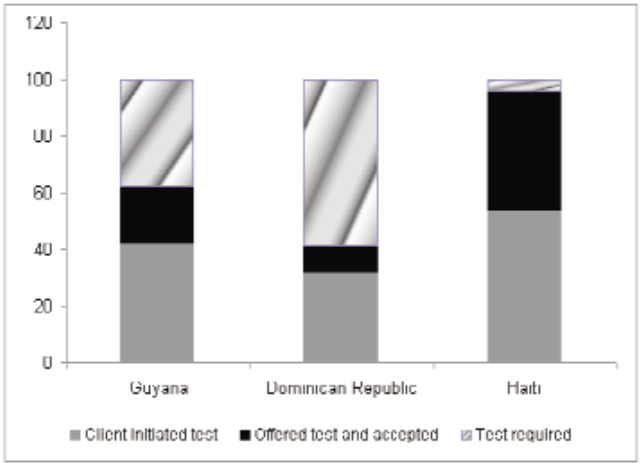

Figure: Model under which last HIV test was received in Guyana, Dominican Republic and Haiti.

receiving testing was older youth aged 21−24 years. The lowest proportion of sexually experienced youth who reported being tested for HIV were adolescents aged 15–17 years.

Rural residence and socio-economic status showed significant associations in two out of three countries. Rural residents were less likely to be tested in Guyana and Haiti than urban dwellers. Only 41% of rural youth in Guyana and 35% in Haiti reported HIV testing. Socio-economic status was significantly associated with being tested. In Haiti ($p < 0.01$) and Guyana, ($p = 0.078$), youth from the high socio-economic groups were more likely to have reported that they were tested for HIV than youth from less wealthy backgrounds. For example, in Haiti roughly 60% of youth who had ever tested were from high socio-economic groups. In the Dominican Republic, youth from poorer status groups were the most likely to have been tested ($p < 0.01$).

Behavioural characteristics of youth ever tested for HIV

The behavioural characteristics of youth reporting HIV testing are shown in Table 3. The majority of youth who

Table 2: Sociodemographic characteristics of youth who report ever being tested for HIV in Guyana, Dominican Republic and Haiti

Characteristics	Guyana			Dominican Republic			Haiti		
	Ever tested	%	*p*-value	Ever tested	%	*p*-value	Ever tested	%	*p*-value
Sex of respondent			0.00			0.00			0.00
Female	220	68.3		4249	72.4		562	81.7	
Male	102	31.7		1616	27.6		126	18.3	
Age (years)			0.00			0.00			0.00
15–17	40	12.4		611	10.4		63	9.2	
18–20	92	28.6		1767	30.1		218	31.7	
21–24	190	59.0		3487	59.5		407	59.2	
Marital status			0.00			0.00			0.00
Never married	150	46.6		1355	23.1		216	31.4	
Currently married	146	45.3		3298	56.2		429	62.4	
Formerly married	26	8.1		1212	20.7		43	6.3	
Educational attainment			0.51			0.18			0.00
No education/primary	36	11.2		2356	40.2		262	38.1	
Secondary/higher	286	88.8		3509	59.8		426	61.9	
Type of area of residence			0.00			0.79			0.00
Urban	190	59.0		3468	59.1		447	65.0	
Rural	132	41.0		2397	40.9		241	35.0	
Socio-economic status			0.78			0.00			0.00
Low	108	33.5		3246	55.3		132	19.2	
Medium	54	16.8		1102	18.8		146	21.2	
High	160	49.7		1517	25.9		410	59.6	

Table 3: Behavioural characteristics of youth who report ever being tested for HIV in Guyana, Dominican Republic and Haiti

Characteristics	Guyana			Dominican Republic			Haiti		
	Ever tested	%	*p*-value	Ever tested	%	*p*-value	Ever tested	%	*p*-value
Age at first sex (years)			0.20			0.43			0.00
Under 15	53	16.7		2942	50.8		339	49.3	
15–19	233	73.3		2543	43.9		295	42.9	
Older than 20	32	10.1		311	5.4		54	7.8	
Recent sexual activity			0.00			0.00			0.00
Had sex in last 4 weeks	206	64.0		4052	69.1		366	53.2	
Did not have recent sex	116	36.0		1813	30.9		322	46.8	
Number of lifetime partners			0.04			0.00			0.00
1	120	37.3		2284	39.2		271	39.5	
2–4	129	40.1		2294	39.4		321	46.8	
5 or more	73	22.7		1243	21.4		94	13.7	
Used condoms at first sex			0.25			0.00			0.43
No	146	45.8		4016	68.5		560	82.2	
Yes	173	54.2		1625	27.7		121	17.8	
Missing				224	3.8				
Consistent condom use with last partner			0.03			0.00			0.72
No	37	11.5		194	3.3		37	5.4	
Yes	81	25.2		1078	18.4		123	17.9	
Missing	204	63.4		4593	78.3		528	76.7	

reported being tested in Guyana had their first sexual experience between the ages of 15 and 19 years ($p < 0.20$). In Haiti and the Dominican Republic, half of the youth who had their first sexual debut under the age of 15 years reported being tested. This association, however, was only significant for Haiti ($p < 0.01$). In each country, youth with a larger number of lifetime partners were more likely to be tested. Youth with two or more partners in their lifetime showed the highest levels of HIV testing in each country.

Youth who engaged in sexual activities in the four weeks prior to the survey were the most likely to report that they had been tested. More than half of youth ever tested in each country had recent sex. This ranged from 53% in Haiti to 69% in Dominican Republic. Only 11% of youth in Guyana and less than 5% in Haiti and the Dominican Republic who did not consistently use condoms with their last partner reported being tested for HIV.

DISCUSSION

This study examined HIV testing rates and behaviours in three Caribbean countries and showed that the majority of youth were not tested for HIV, though they engaged in high risk behaviours. The levels of HIV testing in the Dominican Republic and Guyana were similar to those found in other Caribbean studies – for example, in Jamaica where about 38% reported testing (6) – but higher than rates among American high school students where only 12.7% were tested for HIV (21).

The results also demonstrated a low rate of failure to return for HIV testing results, consistent with rates of about 85% observed among adolescents in the USA (22). The current study presents data on the model under which HIV testing was received. The majority of testing in Guyana and Haiti was done under the VCT model of testing, followed by provider initiated testing. This was in contrast to the high level of involuntary testing observed in the Dominican Republic which is disconcerting given the ethical requirements for conduct of HIV testing (3). It is documented that in the Dominican Republic, women are routinely tested for HIV involuntarily (23) and that testing is mandatory for pregnant women and girls (24). Relatively high rates of testing in Guyana could reflect rapid HIV testing and the introduction of an opt-out testing policy for pregnant women in 2005 (25). The low levels of use of provider initiated testing have implications for strategies to improve uptake, which reduce missed opportunities for timely diagnosis of HIV infection.

The study revealed a consistent gender differential in HIV testing, as young males showed lower rates of testing than females, consistent with other studies (6, 7). The lower levels of testing observed among males suggest the need to improve uptake of testing among young men and could reflect structural barriers and inequalities faced by men in accessing healthcare services generally and HIV testing specifically (26−27); prioritization of women for access to earlier testing and treatment (25); testing of women in antenatal programmes (25); and the nature of the Caribbean epidemic in which young women are at elevated risk of infection (2, 5). Policies and programmes are required which reduce gender-specific and sociocultural barriers and inequalities to HIV testing and which promote routine HIV testing among men. Prevention programmes which emphasized raising awareness of HIV testing, promoting the benefits of early diagnosis, directly targeting youth generally and men specifically are needed.

The study found that rural youth in Guyana and Haiti were significantly less likely to be ever tested than their urban counterparts. It is of concern that rural Haitian youth were less likely to test given that HIV infection levels have not declined in Haitian rural communities and that high risk behaviours have been observed among these youth (28). The lower levels of testing in rural youth could also be explained by the lack of access to HIV testing in these areas as rural health centres in Haiti lack even basic laboratory equipment and hence individuals are rarely tested for STDs and HIV (28). The lower rates of testing among rural youth in Guyana could reflect limited HIV/AIDS services available to rural areas of the hinterland in the interior of Guyana which are challenged by lack of availability of human resources and ability to provide services in a cost effective manner (29). Barriers and inequalities in access to testing facing rural youth need to be addressed if prevention services are to be successful.

The study findings showed a relationship between youth who engaged in high risk behaviours and HIV testing. Youth with more partners were more likely to test than youth with fewer partners. This finding contrasts with previous research in the region which showed no association between HIV testing and risk behaviours as measured by the number of lifetime partners (6, 22). Caribbean studies show that youth engage in high risk behaviours such as early age at first sex, low condom use and large number of sexual partners (30−32). The median age at first sex ranges from about 14 years in Haiti to about 17 years in the Dominican Republic (17−18). Less than 70% used condoms at their last high risk sex with the lowest proportion among women in Haiti and the Dominican Republic (16−18). In the present study, just over one quarter of sexually experienced adolescents aged 15−17 years in the Dominican Republic and Guyana and less than 10% in Haiti had ever tested. Similarly, less than half of youth who reported having five or more lifetime partners had ever tested for HIV. Given the early age at first sex and high risk behaviours, there is a need to provide Caribbean youth with information about HIV and STI prevention, including HIV testing, before the onset of sexual activity. While it was reassuring that youth with the largest number of lifetime partners showed the highest percentage ever being tested, it was disconcerting that the majority of youth reporting such high risk behaviours had not been tested. This highlights the

need to incorporate risk awareness and reduction into strategies promoting HIV testing.

This study is subject to certain limitations which need to be considered. First, the findings are based on self-reports which are subject to social desirability, recall and reporting bias. Secondly, due to the cross-sectional nature of the data and the type of analyses conducted, only bivariate associations are presented which cannot be used to infer causality. Moreover, small samples and dataset constraints limited the types and scope of analyses which could be performed and reduced the power to detect significant differences, particularly in the Guyana dataset. Despite these limitations, the study provides new insights into HIV testing behaviours among youth in the Caribbean, an area previously unexplored.

In summary, HIV testing among Caribbean youth is low. There is a dire need to target youth, especially males, before they engage in sexual intercourse, with messages informing them about HIV testing and the benefits of early diagnosis. A better understanding of the barriers faced by male youth with respect to gender inequalities, sociocultural norms and attitudes, lack of availability of services as well as youth preferences for HIV testing, is required if HIV testing among this group is to be improved. Programmes should also incorporate sociodemographic background characteristics, risk behaviours and assessments when formulating strategies designed to increase uptake. There is also a critical need to expand the drive to promote provider initiated HIV testing which has been shown to increase diagnosis of HIV infection in a more timely manner than the traditional VCT model.

ACKNOWLEDGEMENTS

The author would like to acknowledge Professor N Madise and Dr FA Johnson of the University of Southhampton, Social Statistics Division and anonymous reviewers for their comments on earlier drafts of this paper. The author would also like to thank Measure DHS for access to datasets from the Demographic and Health Surveys and the AIDS Indicator Surveys.

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