

# Considerations for Culturally Appropriate HIV/AIDS Education Strategies in Belize: An Analytical Study Exploring the Relationship Between Knowledge and Stigma

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## ABSTRACT

**OBJECTIVE:** The stigma associated with HIV/AIDS is a global problem and particularly concerning in countries such as Belize where the prevalence of the disease is high. This exploratory study examines factors associated with HIV-related stigma to determine if low HIV knowledge is a contributing factor.

**METHODS:** A cross-sectional survey was administered to participants in San Ignacio and in the rural locale of Bullet Tree. Each survey contained 15 HIV-related knowledge questions and a three question stigma scale. Knowledge-based scores and socio-demographic characteristics were compared in a multivariate logistic model to determine factors associated with HIV-related stigma.

**RESULTS:** A total of 92 surveys were completed. High stigma answers were found among participants with low incomes ( $p=0.010$ ) and low HIV-related knowledge ( $p<0.001$ ). High stigma was also associated with living in a rural community ( $p=0.020$ ) and the absence of a high school education ( $p=0.020$ ).

**CONCLUSION:** Strategies to reduce HIV stigma in Belize should include the expansion of HIV-related education programs.

**KEYWORDS:** *HIV/AIDS, stigma, knowledge, education, Belize*

## INTRODUCTION

Once part of Mayan and Spanish empires, the country of Belize was an English colony, referred to as British Honduras, for over a century until achieving independence in 1981. The official language in Belize is English, and many residents speak an English-based Creole and Spanish. Located within Central America and the Caribbean, it is home to a small population of approximately 295,000, and high literacy rates exist among its residents.<sup>1</sup> However, this region also has the highest incidence of HIV/AIDS in the Americas and is second only to sub-Saharan Africa with respect to the magnitude of the

pandemic.<sup>1</sup> One of the most compelling and challenging features of HIV/AIDS in this area is its diversity, and it is often referred to as an “epidemic with many faces.”<sup>3,4</sup> Similar to global trends, although HIV was initially concentrated in certain marginalized populations (i.e. sex trade and migrant workers, intravenous drug users), it is now a generalized epidemic that particularly affects women and youth at alarming rates.<sup>1,5</sup>

The prevalence of HIV in Belize has risen to become the highest in Central America since the first diagnosis in 1986.<sup>6</sup> The current estimate of adult HIV prevalence (15-49 years of age) is 2.5% and the predominant mode of infection is through heterosexual sexual activity and mother-to-child transmission.<sup>4,6</sup> Since 2003, the state government of Belize has provided antiretroviral medications (ARVs) free of charge to clinically

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eligible individuals (i.e. those with a CD4 cell count below 200/mm<sup>3</sup>) and has established a national plan to address HIV/AIDS.<sup>7</sup> Despite these accomplishments, there is a lack of HIV knowledge among the general public. This may contribute to high levels of stigma and negatively impact the attendant issues of access to antiretroviral treatment and disclosure of HIV status.<sup>8</sup> For instance, if an HIV positive individual seeks treatment they risk social isolation and may be rejected by their family and community. Since communities are often small and patient confidentiality is not necessarily protected, simply being identified at an HIV testing facility in Belize may invite discrimination, regardless of the test result.<sup>9</sup>

The relatively slow government response to the epidemic, the lack of adequate disease surveillance systems, and conservative socio-cultural and religious norms regarding sexual behavior have posed problems for the creation of culturally appropriate and effective HIV education and prevention efforts. In light of these challenges, non-government organizations (NGOs) have introduced some of the most responsive intervention programs across Belize. Yet, very little data on these efforts have been documented or published.<sup>3</sup> This paper is based on findings from a brief project conducted by one such NGO and represents a vital step in reporting on the hard and very necessary work undertaken by this organization in the fight against the epidemic. Designed to investigate HIV-related knowledge and stigma among residents in urban and rural areas of Belize, this data can guide the development of HIV-related education materials and programs to further help reduce the stigma that continues to be linked with the epidemic and those affected.

## MATERIALS AND METHODS

### Background and Survey Development

Stigma is traditionally defined as a discrediting social and moral attribute that creates a “spoiled identity” at the level of the individual and in much of the HIV education and prevention literature. This concept has been applied to diverse socio-economic and political settings.<sup>10</sup> Although defining stigma is problematic in terms of developing standardized measurements that can be compared across cultures, our model is very basic and was created with the input of the NGO with whom we worked, the Cornerstone Foundation. Founded in 1999, the Cornerstone Foundation focuses on issues of human rights, empowerment, HIV/AIDS, and advocacy in relation to the health and safety of women and youth.<sup>11</sup>

The cross-sectional survey contained 15 HIV-related knowledge questions and a three question stigma scale, which was complemented by the collection of basic socio-demographic data (i.e. age, gender, education, income, religion, marital status). The three statements devised to ascertain levels of HIV stigma were the following: 1) people with HIV should live in isolation; 2) talking about HIV makes me uncomfortable; and 3) I am/would be uncomfortable being around people who are HIV positive. All survey questions were answered as either “true”, “false”, or “I don’t know”. Participants were also asked whether they had ever taken an HIV test and if they were aware that free HIV treatment is provided by their government.

### Survey Administration

The general lack of information on HIV knowledge, specifically in terms of differences between rural and urban residents, figured prominently in our selection of research sites. The first locale where participants were recruited was a popular urban market in San Ignacio, which, together with the town of Santa Elena, make up Belize’s second largest urban area. The rural component of our sample was set in an area called Bullet Tree, located 2.5 miles from San Ignacio. Survey recruitment occurred between August and November of 2006. All surveys were administered by trained interviewers and took approximately 10 minutes each. The surveys were coded to maintain participant confidentiality. Ethical approval for this study was obtained by the Cornerstone Foundation through a collaborative, peer-based process.

### Analyses of Survey Data

The analyses presented here are a preliminary look at the survey data. First, we provide descriptive details about the survey sample and participants’ responses to the survey question items. Further, we tabulated HIV-related knowledge-based questions, giving them a percentage score based on the number of correct answers. In a similar fashion, stigma-based questions were also tabulated and given a percentage score. For the purpose of data analysis, “I don’t know” responses were considered equivalent to incorrect knowledge responses or to high stigma responses. Individuals with knowledge scores at or below the 25th percentile had scores of less than 60% and were considered to have relatively low HIV-related knowledge. Individuals were considered to have relatively high HIV-related stigma if a high stigma answer was given for any of the three stigma-based questions. Second, we compared socio-demographic characteristics and HIV-related knowledge scores among participants with low and high HIV-related stigma. This analysis was performed using the Pearson Chi-squared statistic for categorical variables and Wilcoxon rank sum test for continuous variables. Third, we entered all explanatory variables (i.e. socio-demographic characteristics and HIV-related knowledge scores) into a multivariate logistic model to evaluate the effect of these factors on HIV-related stigma. A backward Akaike Information Criterion (AIC) procedure was used to determine the final model. Model fit was examined using the Hosmer Lemeshow statistic for Goodness-of-Fit.<sup>12</sup> All analyses were conducted using SAS version 8 (SAS, Cary, North Carolina, United States). All tests of significance were two-sided with a p-value of less than 0.05 indicating that an association was statistically significant.

## RESULTS

Table 1 summarizes the demographic profile of the survey participants. The median age of the 92 study participants was 22 years (interquartile range [IQR]: 18, 33 years). Those who took part in the project were male (59%), had only elementary school education (40%), were more likely to be single (64%), identified with having a middle or high income (71%), and were Catholic (45%). It is also noteworthy that only 29% of participants were aware that ARVs were subsidized by their government and only 39% had ever received an HIV test (Data not shown).

Table 2 lists the responses to individual questions. The median knowledge-based score was 73.3% (IQR: 67%, 87%). The most poorly answered question, which pertained to the ability of HIV to pass through condoms, was answered correctly by only 23% of participants. The men and women who took part in the study were generally knowledgeable about the inability of HIV to be transmitted through handshaking, with 91% answering this question correctly. For each stigma-based question, approximately one quarter of respondents gave a high stigma answer, indicating that they were either uncomfortable speaking about HIV, being around someone with HIV, or feel that people with HIV should live in isolation.

**Table 1.** Socio-demographic variables of survey participants (N = 92).

Sex <i>n (%)</i>	
Male	54 (59)
Female	38 (41)
Age Median (IQR)	
	22 (18-33)
Education <i>n (%)</i>	
Elementary	37 (40)
High School or College	55 (60)
Marital Status <i>n (%)</i>	
Married	33 (36)
Single	59 (64)
Income <i>n (%)</i>	
Low	27 (29)
Middle or High	65 (71)
Religion <i>n (%)</i>	
Other	51 (55)
Catholic	41 (45)

IQR: Interquartile Range

**Table 2.** HIV-related knowledge and stigma questions items.

HIV-Related Knowledge Questions	Correct <i>n (%)</i>	Incorrect <i>n (%)</i>	Unsure <i>n (%)</i>	Missing <i>n (%)</i>
1. You can tell a person has HIV by looking at them	59 (64.1)	19 (20.7)	14 (15.2)	0
2. A person with HIV can be cured by having sex with a virgin	81 (88.0)	4 (4.4)	7 (7.6)	0
3. Besides not having sex condoms are the best way to prevent HIV transmission	60 (65.0)	23 (25.0)	9 (10.0)	0
4. HIV only affects gay people	80 (87.0)	7 (7.6)	5 (5.4)	0
5. You can get HIV by sharing a cup with an infected person	75 (81.5)	12 (13.0)	5 (5.4)	0
6. Mosquitoes or other insects can transmit HIV	56 (60.9)	26 (28.3)	10 (10.9)	0
7. There is a difference between HIV and AIDS	47 (51.1)	30 (32.6)	14 (15.2)	1 (1.1)
8. HIV can be transmitted by shaking hands with an infected individual	84 (91.3)	2 (2.2)	5 (5.4)	1 (1.1)
9. HIV can be transmitted by being sneezed on by an infected person	69 (75.0)	6 (6.5)	17 (18.5)	0
10. HIV can be transmitted by kissing an infected individual	74 (80.4)	5 (5.4)	13 (14.1)	0
11. There are certain drugs that can be used to treat, but not cure, a person infected with HIV	71 (77.2)	8 (8.7)	13 (14.1)	0
12. Only men can get HIV	86 (93.5)	2 (2.2)	4 (4.3)	0
13. Because the HIV virus is so small it can sometimes pass through a condom	21 (22.8)	53 (57.6)	18 (19.6)	0
14. Using an elastic band and saran wrap is a good way of preventing HIV transmission	57 (61.9)	11 (12.0)	23 (25.0)	1 (1.1)
15. Condoms that have been used more than once are a good way of preventing HIV transmission	76 (82.6)	9 (9.8)	7 (7.6)	0
HIV-Related Stigma Questions	Low Stigma <i>n (%)</i>	High Stigma <i>n (%)</i>	Unsure <i>n (%)</i>	Missing <i>n (%)</i>
1. People with HIV should live in isolation	63 (68.5)	21 (22.8)	8 (8.7)	0
2. Talking about HIV makes me uncomfortable	65 (70.7)	23 (25.0)	3 (3.3)	1 (1.1)
3. I am/would be uncomfortable being around people who are HIV positive	60 (65.2)	24 (26.1)	6 (6.5)	2 (2.2)

Table 3 shows the comparison of socio-demographic variables and HIV-related knowledge among participants with low and high HIV-related stigma.

**Table 3.** Socio-demographic variables and their association with stigma.

Variable	Low Stigma <i>n=41</i>	High Stigma* <i>n=51</i>	p-value
Knowledge <i>n (%)</i>			
Low	7 (17.07)	28 (54.90)	<0.001
High	34 (82.93)	23 (45.10)	
Community <i>n (%)</i>			
Rural	5 (12.20)	17 (33.33)	0.020
Urban	36 (87.80)	34 (66.67)	
Age Median (IQR)	22 (18-31)	22 (17-38)	0.880
Gender <i>n (%)</i>			
Female	16 (40.00)	21 (42.00)	0.850
Male	24 (60.00)	29 (58.00)	
Education <i>n (%)</i>			
Elementary	11 (26.83)	24 (51.06)	0.020
High School or College	30 (73.17)	23 (48.94)	
Income <i>n (%)</i>			
Low	6 (16.22)	16 (42.11)	0.010
Middle or High	31 (83.78)	22 (57.89)	
Religion <i>n (%)</i>			
Other	24 (58.54)	27 (52.94)	0.590
Catholic	17 (41.46)	24 (47.06)	
Marital Status <i>n (%)</i>			
Married	11 (26.83)	22 (43.14)	0.110
Single	30 (73.17)	29 (56.86)	

\*Respondents who gave a high stigma answer to any of the three stigma-based questions were considered to have relatively high stigma.

These data reveal that participants with low HIV-related knowledge were more likely to have high stigma ( $p < 0.001$ ). In addition, we observed significantly higher stigma in the rural setting ( $p = 0.020$ ) and in individuals with only elementary education ( $p = 0.020$ ) and low incomes ( $p = 0.010$ ). Notably, a number of participants with high HIV-related knowledge also demonstrated high stigma.

Table 4 presents the univariate and multivariate analyses of factors associated with HIV-related stigma. In univariate analyses, high knowledge was significantly associated with low stigma. Additionally, living in an urban setting, having a high school or college education, and having a middle or high income was significantly associated with low stigma. In multivariate analysis, high knowledge remained significantly associated with low stigma (odds ratio [OR] 0.17; 95% confidence interval [CI] 0.06, 0.49). As well, living in an urban community was significantly associated with low stigma (OR 0.25; 95% CI 0.08, 0.81). Using the Hosmer-Lemeshow statistic, we obtained a non-significant  $p$ -value of 0.10, indicating a good model fit.

**Table 4.** Univariate and multivariate analyses of factors associated with HIV-related stigma.

Variable	Unadjusted OR (95% CI)	Adjusted OR (95% CI)
Knowledge ( <i>High vs. Low</i> )	0.17 (0.06, 0.45)	0.17 (0.06, 0.49)
Community ( <i>Urban vs. Rural</i> )	0.28 (0.09, 0.84)	0.25 (0.08, 0.81)
Age	1.02 (0.98, 1.05)	--
Sex ( <i>Male vs. Female</i> )	0.92 (0.40, 2.15)	--
Education ( <i>High School/College vs. Elementary</i> )	0.35 (0.14, 0.86)	--
Income ( <i>Middle/High vs. Low</i> )	0.27 (0.09, 0.79)	--
Religion ( <i>Catholic vs. Other</i> )	1.26 (0.55, 2.88)	--
Marital Status ( <i>Single vs. Married</i> )	0.48 (0.20, 1.17)	--

OR, odds ratio  
CI, confidence interval

## DISCUSSION

HIV/AIDS within Central America and the Caribbean is characterized by great diversity with respect to levels of infection and transmission patterns, and the magnitude of the epidemic is second only to sub-Saharan Africa.<sup>5,13</sup> These factors, along with the structural inequalities, lack of systematic disease surveillance, and pervasive religious norms that often prohibit public discussions about sexuality, combine to make culturally relevant and responsive HIV education and prevention programs very challenging to develop. This is particularly troubling in Belize, where the prevalence of HIV among adults has risen to 2.5%, the highest of any country in Central America. However, the government of Belize spends the most amount of capital on combating the epidemic of any country in Central America and the Caribbean.<sup>14</sup> Importantly, it is also one of the few locales in the area that offers free ARVs to those with the virus who are clinically eligible. This complicated paradox has yet to be adequately addressed in state or NGO-run HIV programming or in the prevention literature.

It is important to acknowledge that HIV education and

prevention efforts are, in many respects, in their infancy in Belize. Take, for instance, the series of HIV-related myths that have been posted on the Cornerstone Foundation’s website:

“You cannot contract HIV from a mosquito; HIV/AIDS education does not lead to sexual promiscuity; Having intercourse



### HIV-related misconceptions have posed challenges to educational campaigns.

with a virgin will not cure HIV; Condoms do not have tiny holes in them that allow HIV to enter the body; You won’t keep HIV away by drinking red Fanta after intercourse; Hugs, tears, sweat, and breath do not spread HIV; Washing with lime juice after intercourse does not keep HIV away; and Sharing eating utensils, cups, a toilet, the river, toys, or a home with someone who is HIV+ does not put you at risk of contracting the virus.”<sup>11</sup>

These scenarios echo ideas that were circulating in North America twenty years ago and bring into stark relief some of the dominant concepts regarding HIV/AIDS, transmission, and people living with the virus. In one of the few published papers on stigma in Belize, it was found that Belize has the second highest level of HIV-related stigma within Central America and Mexico, a clear indication of the significance of developing culturally specific education and prevention strategies in this setting.<sup>15</sup>


Since the advent of the epidemic, HIV-related misconceptions have posed challenges to educational campaigns. For instance, some Catholic school teachers, in an attempt to promote abstinence, were instructing their students that HIV can pass through condoms.<sup>11</sup> Our results did not show that Catholics were less knowledgeable about HIV than non-Catholics. However, the majority of the study sample believed that HIV could pass through a condom, and, as mentioned above, this particular issue has been featured on the Foundation’s web site as one of the primary myths associated with HIV/AIDS. Conversely, our participants had a good understanding of low risk transmission routes, such as hand shaking and drink sharing. These two sets of HIV-related knowledge are markedly different: one is directly related to issues of sexuality, reproduction, and religion, whereas the other forms of information are much less socially charged. That HIV-related knowledge/information does not necessarily lead to behavior change is not a novel finding,<sup>16-18</sup> but the importance of different kinds of information must be considered when designing prevention and education programs that are culturally appropriate and population-specific.<sup>5,19-20</sup>

The prevalence of HIV-related stigma among our participants is consistent with previous findings in Belize and other Central American countries.<sup>3,13,15</sup> Our results indicated that participants from urban communities and those with higher HIV-related knowledge had lower HIV-related stigma. It is worth noting that a fair number of participants with high HIV-related knowledge also demonstrated high stigma. Although this finding was not significant in our study, it indicates that stigma in Belize may be partially due to factors unrelated to HIV knowledge,

namely the forces of religion, sexuality, gender roles, and access to education.<sup>2,5</sup>

Our data suggest that HIV-related stigma may be reduced if more emphasis is placed on HIV education which takes into account local cultural realities. In Belize, the primary mode of HIV transmission is through sexual contact in heterosexual populations, and sexual intercourse starts at a relatively young age, with 32% of adolescents having sex for the first time at age 15.<sup>7</sup> Individuals aged 15-24 are particularly at risk of acquiring HIV, and the prevalence in this group is estimated to be an alarming 3.4%.<sup>6</sup> Accessing these young people through the school system is perhaps the most effective way to inform them, especially in light of the absence of well-developed public health campaigns regarding HIV/AIDS. However, only 44% of Belizeans attend secondary school, which presents major challenges to increasing HIV knowledge among this vulnerable population.<sup>7</sup> Fortunately, since 2007 the Health and Family Life Education (HFLE) unit of the Ministry of Education has been in the process of implementing HIV and sexual education programs in Belizean primary schools. School-based HIV knowledge interventions have been previously effective in improving the HIV-related knowledge of adolescents.<sup>21-22</sup> Currently, all public schools are required to follow the curriculum developed by the HFLE. The HFLE has wisely chosen to establish a system to monitor and evaluate these programs, the results of which will allow for future improvements of the curriculum.

The results of this study have their limitations. The administered survey has not been assessed for validity or variability. In addition to a relatively small sample size of 92, the results do not constitute a random sample. Individual participation was voluntary, and participants were approached by interviewers, which is a possible source of sampling bias. The interviews took place in one of the six primary districts in Belize, the Cayo district, and our results are not intended to be applied to, or necessarily representative of, the experiences of residents in the rest of the country. Additionally, our findings are observational and do not necessarily represent a causal relationship between HIV-related stigma and education. Finally, while findings did indicate that Belizeans with high stigma had significantly lower HIV-related knowledge, there were a considerable number of participants with adequate knowledge who had high stigma. Additional studies are needed to more fully characterize HIV knowledge and stigma at the national level, especially those that are developed collaboratively with local organizations and which reflect the specific needs and priorities of the social group(s) in question.

The results of this study support the idea that if youth are not properly educated about HIV before leaving school they may develop relatively high stigma towards the disease and those affected.<sup>23</sup> Along with enhancing school-based HIV programs, educational outreach programs are also needed and should target those who are no longer in school, particularly in rural communities. 

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