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A Comparative Analysis of the Attitudes towards People Living with HIV/AIDS between Haiti and the Dominican Republic

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ABSTRACT

BACKGROUND: HIV-related stigmatizing attitudes are persistent concerns in developing countries and have been shown to fuel the spread of the epidemics. The purpose of this study is to provide a comparative analysis between Haiti and the Dominican Republic in regards to the population's attitude towards People Living with HIV/AIDS (PLWHA).

METHODS: Cross-sectional data from the Demographic Health Surveys involving 15,715 Haitians and 55,170 Dominicans from 2005 to 2007 were used. A score of attitudes was established from six items such as the willingness to care for infected relatives, the willingness to buy vegetables from an HIV infected vendor, the perception that HIV patients should be ashamed of themselves, the agreement to blame and force them to keep their serostatus secret and finally the agreement to allow infected teachers to continue their jobs. Descriptive statistics, univariate and multivariate analyses of selected socio-demographic variables were obtained by using the Statistical Package for Social Sciences (SPSS).

RESULTS: Logistic regression models showed that female Dominicans and male Haitians, respondents of higher socio-economic status and with more accurate HIV-related beliefs were significantly more tolerant towards PLWHA ($p<.001$). Furthermore, the Dominican Republic's data analysis suggested that those aged between 30 and 44 years old, living in urban areas and married expressed more tolerance for the HIV- infected individuals. Overall, the attitudes and beliefs of the Haitians adjusted for socio-demographic variables did not differ markedly from the Dominicans.

CONCLUSION: The attitudes towards PLWHA seem to be associated with the nature of the HIV-related beliefs in some vulnerable groups. The findings of this study should guide the design of appropriate programs aimed at the education of targeted populations.

KEY WORDS: HIV/AIDS, stigmatizing attitudes, beliefs, Haiti, Dominican Republic

A comparative analysis of the attitudes towards people living with HIV/AIDS between Haiti and the Dominican Republic

By Georges Perrin

MD, Haiti State School of Medicine

A Thesis Submitted to the Graduate Faculty of Georgia State University in Partial Fulfillment of the Requirements for the Degree

Master of Public Health

Atlanta, GA

2010

Approval Page

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Acknowledgements

To my Savior, the Almighty God: I am nothing without YOU…I praise the Lord for all His blessings.

I would like to thank the faculty and staff of Georgia State University's Institute of Public Health. I would like to especially acknowledge my thesis committee members, Dr Richard Rothenberg, Dr Ike Okosun, Dr Michael Eriksen for providing guidance and support throughout this process.

To my family: I am grateful for your love and support. You always believe in me and lift me up when I stumble.

To my classmates at Georgia State University: I am thankful for your help, friendship and encouragement.

To the people of Haiti: You are giving me the strength to follow my journey. I am proud to be part of a nation that taught me that life despite tears and sorrows is precious.

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CHAPTER I

INTRODUCTION

In the past three decades, HIV infection is undoubtedly the disease that has captured more political and scientific mobilization than any other disease. The latest data from World Health Organization reveal that 33.4 million people live with HIV virus worldwide with almost 90% of the infected living in developing countries (WHO, 2009). Despite medical advances and widespread availability of medication, HIV-AIDS remains a significant public health issue. In the United States, racial disparities pose a large challenge to a country in which Africans-Americans account for nearly half of all infections (CDC, 2009). Negative or discriminatory attitudes towards those infected by HIV/AIDS are pervasive throughout the world and constitute a major element in the spread of the epidemics.

The first cases of HIV/AIDS occurred in the Caribbean region in early 1980s killing thousands of people. After sub-Saharan Africa, the Caribbean region is the most affected in the world. Since the beginning, Haiti has been the face of the epidemic with being Haitian considered as a risk factor of getting the disease. Due to the unknown origins of HIV, scientists from CDC made many controversial statements about the epidemic which was referred as 4 H disease (Hemophiliacs, Heroin addicts, Homosexuals and Haitians). The statement released by CDC in March 1983 would eventually create a lot of psychosocial damage and generate complaints of stigmatization from Haitian officials (MMWR, 1983). Ultimately, CDC removed the

Haitians as a risk factor for the disease but the consequences are evident with Haiti being considered as a threat for the spread of epidemic more likely to the neighboring countries such as the Dominican Republic.

Haiti and the Dominican Republic were the first countries to report AIDS cases in the region. The Dominican government quickly launched a national AIDS Program to fight against the epidemics and consequently prevention programs have been implemented throughout the country (Halperin et al., 2009). In Haiti, political unrest and lack of commitment delayed the intervention programs and wrong beliefs continued to spread about the origins of the disease fueling the transmission rates. The epidemics devastated thousands of Haitian citizens and the launch of PEPFAR program around 2003 has been the turning point to the behavioral changes. Those facts could justify the main reasons why the two countries have consistently shown marked differences in the HIV prevalence rates.

Haiti shares the Hispaniola Island with the Dominican Republic, occupying the western third part of the island. The HIV epidemic affected both countries severely but Haiti has suffered with more human losses in Haiti with HIV being one of the leading causes of deaths in the country. Haiti has the highest prevalence of HIV infection in the region with estimates of 2.2 % in accordance with the results of the latest Haitian demographic health survey (EMMUS IV, 2005-2006). On the other hand, 0.8% of the Dominicans are HIV-infected (Dominican Republic Demographic and Health Survey, 2007). According to the Joint United Nations Programme on HIV/AIDS (UNAIDS, WHO 2009) in 2007, more than 120,000 people are estimated to be living with HIV in

Haiti and 7,500 deaths occurred among AIDS patients. The same sources estimated 62,000 people living with HIV and a total of 3,900 deaths among Dominicans in the same year.

Fortunately, Haiti and the Dominican Republic have both experienced declines in the prevalence of the epidemic mainly due to constant changes in sexual behavior and attitudes. Intervention programs funded more likely by the United States and others are key assets in the fight against the epidemic in the Hispaniola Island. Throughout the years, more and more projects targeting vulnerable people at high-risk to acquire the disease have been implemented with the help of both national and international organizations. However, discrimination and stigmatization are still big issues in the Caribbean region. It is necessary for HIV interventions to go beyond normal the IEC (Information Education Communication) programs to address the negative attitudes towards people living with HIV/AIDS.

Stigma is associated with conditions or diseases that have harmful and incurable outcomes, particularly when the means of transmission are perceived to be under the control of individual behavior. Stigma is also common in diseases that are perceived to be the result from the transgression of the social norms (Gilmore & Somerville, 1994). HIV/AIDS can lead to various forms of discrimination and ill-treatment that can negatively affect the well-being of infected patients. Many human rights activists have raised growing concerns about stigmatization and discrimination in HIV/AIDS infected populations. Amnesty International (2006) outlined in a special report that people living with HIV/AIDS have to deal not only with the disease itself,

but also with society's response which is often characterized by fear and discrimination. This report was based on the findings related to the connection between human rights violation and HIV/AIDS in the Caribbean region especially the Dominican Republic and Guyana. However, one could expect the same trends in Haiti where the HIV/AIDS epidemic is worse.

There has been little research about the attitudes of Haitians and Dominicans towards HIV/AIDS infected individuals. The Demographic Health Survey (DHS) funded by the United States Agency for International Development (USAID), has collected nationally representative data on HIV/AIDS in more than 80 countries including Haiti and the Dominican Republic. The Demographic Health Survey contains a group of questions that serve as indicators of the attitudes of the respondents towards people living with HIV/AIDS.

PURPOSE OF STUDY

The primary purpose of this study is to analyze the attitudes of the DHS survey respondents towards HIV/AIDS infected people. First, the study will review the literature for an accurate understanding of the issue by providing information about the attitudes of people toward HIV infected people in various populations. Second, the study will examine the attitudes of the Haitian and the Dominican survey respondents and display the results by gender, age group and education level. Also, a comparative analysis will be conducted to highlight potential similarities and differences between respondents in the two Caribbean countries. Finally, diverse recommendations will be

proposed for public health interventions in order to overcome these psychosocial barriers that affect the HIV/AIDS population.

The main **research question** is whether or not the attitudes of Haitians toward HIV infected patients differ from the attitudes of Dominicans in terms of assorted categorical variables. In order to reach a conclusion, the following questions will be addressed:

1- Is there a gender difference in the attitudes of survey respondents towards people living with HIV/AIDS in Haiti and the Dominican Republic?

2- Is there a difference of the attitudes of the respondents related to their socio-economic status across the two countries?

3- Is there an association between the place of living (urban versus rural) and the attitudes toward people living with HIV/AIDS?

4- Is there an association between HIV Status and the attitudes toward people living with HIV/AIDS?

5- Is age a factor related to the attitudes of Haitian and Dominican toward people living with HIV/AIDS?

6- Is there a correlation between HIV-related beliefs and the attitudes aforementioned?

Theoretical Framework

1- The theory of Instrumental functions.

The severity of the HIV epidemic in the early 1980s has contributed to the emergence of stigmatizing attitudes towards the infected individuals. Adapting previous theories by Katz (1960) and Smith et al (1956) on functional attitude theories, some researchers in the HIV sphere conceived that the attitudes towards people living with HIV reflect one's personal interests. Gregory Herek (1986), John B.Pryor et al (1989) were among the few who investigated the role of the instrumental functions in the expression of attitudes towards those infected by HIV. They also discussed the role of symbolic functions in the social response to HIV/AIDS, meaning that the attitudes are expressions of one's personal values. This symbolic expression largely explained the linkage of the disease to homosexuality and immorality, and consequently the development of intolerant attitudes mixed with homophobic attitudes.

Studies in line with Instrumentality or Symbolism

Psychological Model by Crandall et al.

In the presence of a serious disease like HIV/AIDS, the attitudes of the individuals towards people living with the virus are based fundamentally on the fear to contract the disease. Christian S. Crandall et al (1997) provided a comprehensive framework for a better understanding of the attitudes of the people towards those infected by HIV. The authors demonstrated through their study that the HIV-related stigmatization is related to both instrumental and symbolic concerns. According to

this model, the apprehension of contracting the disease influences the development of negative attitudes.

Connors & Hely (2007) conducted a study in order to define the significant predictors of attitudes towards people living with HIV/AIDS. The results of this study involving 220 young Australian men and women revealed that the fear of contracting HIV (instrumental function) and homophobia (symbolic attitude) greatly contributed to the intolerance towards people living with HIV.

2- Health Belief Model

The behavioral theory behind this project is the Health Belief Model. This psychological model was developed by Rosenstock in 1966 in an attempt to analyze and understand the behaviors, attitudes and the beliefs of individuals in response to a health-related condition.

Over the years, six concepts have been defined and applied in order to understand the psychological bases of attitudes and behaviors of people towards health issues and to design appropriate educational and awareness programs aiming to change unfavorable attitudes. Some concepts of the Health Belief Model were often outlined to explain the attitudes towards people living with HIV and the readiness to change such attitudes.

Perceived Susceptibility: The negative attitudes towards people living with HIV/AIDS might be explained by the perceived chances to acquire HIV according to the opinions of the respondents

Perceived Severity: The opinions of the individuals are based on the perception that HIV infection is a serious condition and the consequences of the disease are expected to be very severe.

The perceived susceptibility and severity of the disease are components of the theory of Instrumentalism and symbolism largely consumed by Herek (1985) and Pryor et al (1989), which state that personal attitudes towards HIV-infected people reflect the needs of the individuals to avoid a threat by rejecting those affected by the disease. This functional value is related to the severe nature of the illness.

CHAPTER II

REVIEW OF THE LITERATURE

The Joint United Nations Programme on HIV/AIDS (UNAIDS, 2007) defines HIV-related stigma and discrimination as "a process of devaluation of people either living with or associated with HIV and AIDS. Discrimination follows stigma and is the unfair and unjust treatment of an individual based on his or her real or perceived HIV status." The same report identified stigma and discrimination as major obstacles to effective responses to HIV. All over the world, especially in developing countries where the epidemic is detrimental, stigma and discrimination have multiple consequences within numerous contexts that affect the conditions of people living with HIV/AIDS.

In the Caribbean Region

In Haiti, there are very few reports about stigmatization and discrimination issues. One of the rare publications about the concept was released in 2005 by Castro & Farmer. The authors provided an explanation about the development of discriminatory attitudes in rural Haiti. They argued that stigma and discrimination are part of complex systems of beliefs about illness and disease. The authors stated that HIV-related stigma is connected with the quality of services and care available. According to the article, stigma and discrimination could be reduced by comprehensive programs that target education, information about access to care and treatment.

In 2006, Amnesty International provided an update of the situation in the Caribbean region particularly in the Dominican Republic and in Guyana. The report highlighted growing concerns about the situation in the Dominican Republic especially for vulnerable groups such as women and Haitian descendents. Despite existing laws which supposed to protect HIV/AIDS people against prejudice, discriminatory attitudes in the workplace, in the healthcare facilities and in the communities have continued to be significant problems.

In Guyana, one of the Caribbean countries most affected by HIV/AIDS, Amnesty International expressed some concerns about human rights violations against people living with HIV/AIDS. A survey conducted in 2004 among young populations, revealed that approximately 23% of the participants argued that people living with HIV/AIDS should be quarantined. Amnesty International also drew attention to discrimination faced by people living with HIV/AIDS in the workplace and provided testimonials from those infected with HIV infected people facing daily discrimination. For instance, a HIV-infected Guyanese woman testified that she has been repeatedly denied jobs because of her HIV status (Amnesty International, 2006).

Jamaica, another country severely affected by the HIV/AIDS epidemic in the Caribbean region, is also faced with the negative effects of prejudicial attitudes towards people living with the virus. In 2005, the Jamaican Ministry of Health expressed true concerns about ongoing stigmatization and discrimination against HIV infected people. A cross-sectional study of 252 students in Jamaica (Norman et al, 2006) revealed that the participants have the tendency to associate the disease with

homosexuality and sex work. Interestingly, the findings suggest more positive attitudes towards children infected through perinatal transmission or people infected during a blood transfusion. Additionally, another study conducted in rural Jamaica (Mahdi et al., 2004) revealed that individuals less than 30 years of age were less likely to stigmatize people living with HIV/AIDS when compared to people aged 30 years old and more. The latter study also showed that women were more tolerant towards PLWHA.

A notable study in Barbados (Messiah et al, 2004) assessed the attitudes of 273 physicians towards their patients. Because physicians are more knowledgeable about HIV, one might expect that they would have more favorable attitudes towards people living with HIV/AIDS. However, the results of the survey confirmed that some physicians (20%) were uncomfortable having HIV/AIDS clients and would test a patient without consent. The analysis of the results also demonstrated that the attitudes of the physicians were associated with their level of knowledge about the disease. Physicians with a higher level of knowledge about HIV infection tended to have more positive attitudes towards the patients living with HIV/AIDS, while physicians with a lower knowledge expressed more negative attitudes and were more likely to provide inappropriate care and services to their patients.

In African Region

Genberg et al., (2009) extensively discussed in their article the impact of HIV/AIDS –related stigma and discrimination on people living with the virus. The

authors compared the perceived acts of discrimination towards people living with HIV/AIDS in 4 countries (Tanzania, Zimbabwe, South Africa and Thailand). The results of the comprehensive survey demonstrated more negative attitudes and higher perceived discrimination towards patients living with HIV in areas where the support system and educational programs were lacking. The study emphasized as well on the link between HIV knowledge and the attitudes toward HIV infected people.

A study conducted in Nigeria by Ogunjuyigbe et al. (2009) assessed the attitudes of the citizens of Lagos State towards people living with HIV/AIDS. The study enrolled HIV positive and negative participants. People living with HIV were asked to share their experiences related to stigma and discrimination during in-depth interviews. The study revealed that approximately 65% of HIV negative male and 55% of HIV negative female participants would not shake hands with patients living with HIV/AIDS. Furthermore, 70% of the HIV negative male sample and 58% of the females would not eat together with HIV infected people. 63 % of the HIV negative male and 80% of the HIV negative female believed that people living with HIV/AIDS should not hold public offices. The main reason provided for those attitudes is the fear of being infected by interacting with people living with the virus. The study also revealed that a great majority of the HIV infected participants have felt stigmatized at least once in their life because of their HIV status and that stigmatization led to depression, shame, or even suicide thoughts among this population. The results of this study highlighted great concerns in Nigeria regarding HIV-related stigma, and the need for appropriate HIV education programs targeting the issue.

The reliability of the previous study has been confirmed by another Nigerian study (Nwanna, 2005) that assessed the level of HIV-related stigma and discrimination in the workplace in Nigeria. The sample of the study was comprised of 150 HIV positive participants who responded to a structured interview related to the attitudes of people regarding their status. The study showed that of the people living with HIV/AIDS who had worked, 48% have lost their jobs and more women than men reported stigmatizing and discriminating acts.

Botswana has the highest prevalence of HIV in the world and discriminatory attitudes are expected to be very common in this southern African country. For that reason, the Botswana AIDS Impact Survey conducted in 2001 had several questions that were used to assess the stigmatizing attitudes among the survey respondents (Letamo, 2003). The findings of this study showed mixed results. For instance, most of the respondents were willing to care for a family member with HIV/AIDS, but a large majority (60%) of the respondents in this study reported that they would not buy vegetables from a vendor infected with HIV. Interestingly, women were found to be more tolerant than men, perhaps because women are the principal caregivers in the households in developing countries. As a final point, most people who expressed discriminatory attitudes were young people which indicated a need for targeted educational programs.

In Asia

The level of stigma and discrimination towards people living with HIV was also found to be very high in a study conducted in India by Sudha et al (2005). According to the survey involving 800 individuals in the city of Hyderabad, only 18% of the participants were willing to care for an HIV positive family member. Furthermore, 41% of the survey respondents stated that HIV infected students should not be allowed to attend schools, and about the same percentage reported that they would not buy things from a retailer suspected of being infected with HIV. More than 80% of the participants stated that they believed it to be inappropriate for people to tell others about their HIV status.

The extent of the negative attitudes towards people living with HIV in this large city was further demonstrated by the fact that 51% of the respondents wanted a public list of the people infected with HIV in order to avoid them. The results of the study also showed that illiterate participants were more likely to exhibit discriminatory attitudes.

In Nepal, key attitudes and beliefs related to stigma and discrimination towards people living with HIV/AIDS were explored by Family Health International (FHI) in 2003. Even though the majority of the survey respondents approved of social interactions with HIV infected people, one-third of the respondents expressed their desire to separate individuals living with HIV from the general population. Respondents expressed concerns and fears that HIV infection could be transmitted

through casual contact with infected people. In addition, nearly three-fourths of the respondents thought that contracting HIV/AIDS was a punishment for immoral behavior. The same proportion of the respondents said they would discourage someone from marrying the child of an infected person. These findings suggest urgent needs for aggressive awareness campaigns to educate the population in Nepal about the means of transmission of HIV. According to FHI, the negative attitudes and beliefs could be reduced and even eradicated by a greater depth of knowledge of the nature of the disease.

Al-Owaish et al. (1999) assessed the attitudes of the population in Kuwait towards people living with HIV/AIDS. This is one of the few studies conducted in the Gulf region regarding HIV-related stigma. A cross-sectional survey of 2,219 participants included a set of questions specific to the attitudes about HIV infected people. The findings of the study suggested that about 80% of the participants believed that people with HIV/AIDS should not be left to live freely in the community, and 34 % said that those infected with HIV should be ostracized in order to prevent the HIV chain of transmission. Interestingly, the multiple regression model used in that study showed that females, younger ages, single participants and those of low socioeconomic status were more likely to express negative attitudes towards people living with HIV/AIDS. This reality reflected a huge need for educational programs targeting the populations susceptible to expressing more discriminatory attitudes.

A later study was conducted in Iran by Tavoosi et al (2002) and published in 2004. The comprehensive survey involving 4,641 students and utilizing a cluster

sampling design revealed a high level of intolerant attitudes among participants towards HIV positive individuals. One-third of the participants were not willing to sit near an infected student. About 15% of the female participants and 18% of the male participants expressed feelings of hatred towards those infected with HIV.

A well-structured survey among 383 female college students in Japan assessed the attitudes and the beliefs of the participants regarding HIV positive patients (Maswanya et al, 2000). The study demonstrated a high level of negative attitudes among the respondents. Half of the participants stated that they would feel uncomfortable and burdened to live if sharing a home with a person infected by the virus. Similarly, more than two-thirds of the respondents were not willing to take care of people living with HIV/AIDS.

Compared to Japan, the situation appears to be worst in China where the level of discriminatory attitudes towards those living with HIV/AIDS has drastically increased from 1994 to 2000(Lau& Tsui, 2003). A survey of the general population consisting in 20 items that assessed that assessed HIV-related attitudes (Lau&Tsui, 2005) examined the attitudes of 800 participants in a cross- sectional telephone survey in Hong Kong. 42% of the survey respondents affirmed that they would avoid contact with a HIV positive individual among the 20 items assessing the HIV-related attitudes. Approximately 40% of the female respondents and 34 % of males believed that a person infected with HIV could not appear healthy. In general, younger people and respondents with a higher level of education expressed more positive feelings towards the HIV positive people.

North America

The concept of stigma and discrimination is also an issue in developed countries. In the United States, negative attitudes towards people living with HIV/AIDS still exist and are sometimes related to the misconceptions about the disease. Herek et al. (2002) performed telephone surveys to assess the prevalence of negative feelings and attitudes about HIV infected people. The samples were obtained according to a random procedure. The results of the findings showed that 20% of the samples supported a quarantine action for the people living with HIV/AIDS. In addition, 30% of the participants stated that they would avoid shopping in a grocery store if the owner was found to be HIV positive. Approximately one-fourth of the respondents thought that the people who got AIDS have gotten what they deserve.

In Canada, the HIV/AIDS Attitudinal Tracking Survey conducted by EKOS Research Associates (2006) showed some patterns of stigmatization towards people with HIV/AIDS in the general population. Although 81% of the survey respondents did not believe that the HIV positive people should be quarantined, approximately 25 % believed that people with HIV infection should not be allowed to provide some public services (hairstylists, dentists, food vendors). Survey results also outlined that Canadian women were more likely to have positive attitudes, while senior citizens were less likely to support the rights of those infected by the virus.

In Europe

The increased rates of HIV infection in Russia fueled mixed reactions and feelings in the population. In May 2005, 2,400 people were surveyed in order to assess, among other issues the attitudes and stereotypes related to HIV infected individuals (Popova, 2007). The study participants included students in high schools and professional schools, teachers and parents of students. The findings from the survey showed that a vast majority of the respondents did not blame people with HIV/AIDS for their condition. However, nearly half of the participants did believe that being in close proximity with HIV infected people should be avoided. Interestingly, the students were found to be more tolerant towards people who are infected with HIV compared to teachers and parents.

In France, the attitudes toward people living with HIV/AIDS were assessed by a national cross-sectional survey that recruited 4,963 HIV-infected individuals. Among responding participants, 12% reported experiences of stigmatization from the close family and 24% of respondents felt discriminated by their social environment. In addition, a higher percentage of participants (27%) reported stigmatizing attitudes from their healthcare providers (Peretti-Watel et al.,2007).

An epidemiological study about HIV knowledge, attitudes and misconceptions was conducted in Turkey and supported some findings previously reported. The results of the study demonstrated that women, people living in the city and well-educated participants expressed more positive attitudes towards people living with

HIV/AIDS (Ayranci, 2005). Furthermore, this study revealed that misconceptions about HIV/AIDS are related to stigmatizing attitudes and recommends that accurate knowledge about the disease should be addressed by educational programs.

CHAPTER III:

METHODS & PROCEDURES

Data Source

The data for this study were obtained from the Measure Demographic and Health Survey (DHS). This project is exclusively funded by the United States Agency for International Development (USAID) and provides comprehensive data about diverse health issues such as HIV/AIDS. DHS has collected, processed, analyzed and disseminated surveys in more than 85 countries including Haiti and Dominican Republic. Household's questionnaires include a household schedule, which is used to identify eligible men and women for individual questionnaires.

The Demographic and Health Surveys granted permission to download the HIV data from on-line archives for both Haiti and the Dominican Republic. Users are requested to submit an electronic or a hard copy after completion of the study. Furthermore, the protocol for this study was reviewed and approved by the Georgia State University Institutional Review Board on January 20, 2010. This study was exempted from review process since the research involved anonymous survey procedures pre-authorized for use by the Measure Demographic and Health Survey (DHS).

Fundamentally, the survey instrument is a tailored questionnaire designated to obtain diverse information about the respondent's socio-demographics profile, access to care, level of knowledge about specific diseases and their related- behavior and

attitudes towards certain health-related conditions. The DHS survey type used for this study is the standard DHS survey which utilizes sample sizes usually between 5,000 and 30,000(DHS, 2006).

The 2005-2006 Haiti survey was conducted by l'Institut Haitien de l'Enfance on behalf of the Haitian Ministry of Health. The survey was conducted between October 2005 and June 2006 in households reaching all the 10 departments of the country. The 2007 nationally representative data from the Dominican Republic was conducted by the Centro de Estudios Sociales y Demográficos (CESDEM). The surveys in the Dominican Republic were performed between March and August 2007. Multistage sampling techniques were used in both countries to randomly select the areas, the households and the individuals to be surveyed. Both questionnaires contain the same variables and the same codes making data comparisons feasible across the two countries.

Study Population

The anonymous datasets were extracted from SPSS files. The Haitian sample size contains 10,759 women aged 15 to 49 years old and 4,958 men aged 15 to 59 years old. On the other hand, the Dominican sample contains 27,195 women aged 15 to 49 years old and 27,975 men aged 15 to 59 years old.

The variables selected for the current study are identical for both countries and were merged in a single file for specific statistical analyses. The data in the recode file are in a standardized format allowing easy comparison of data between the two

countries. The merged file includes female and male data for the two countries. Two additional variables were computed (gender and country) and added to the final data set in order to be able to run analyses related to gender within a specific country.

Finally the HIV test performances and results were retrieved from a different file and merged with the final data by using participant Number ID and Cluster ID as the matching variables.

Study design and Variable List

The cross-sectional nature of the original data made available diverse independent variables that will be used to understand the attitudes of the respondents towards HIV positive people.

A) Independent variables:

Gender: was recoded 0=male and 1=female for both countries. We compute this new variable into the final dataset in order to run the appropriate analysis within the two countries.

Age: We used Age Group to predict an association between specific age groups and attitudes towards people living with HIV/AIDS.

Wealth: The wealth index has been recoded into three categories: 1=Poor; 2=Middle; and 3=rich.

Place of living: (rural versus urban) is an explanatory variable that might be associated with the development of negative attitudes. The place of residence is a categorical variable coded a 1 for Rural and 2 for Urban.

Educational Attainment: In order to assess the association between educational attainment and attitudes toward people living with HIV, we recoded six survey items into the following four categories:

1: No education

2: Primary education

3: Secondary education

4: Higher education

It is important to note that the category of primary education contains both people with complete and incomplete primary education. This also applies for the secondary education.

Marital status is a categorical variable with six coding options:

1: never married

2: living together

3: widowed

4: divorced

5: not living together

6: married

HIV status: The HIV status of the survey participants was assessed to determine whether or not there is an association between HIV status and the attitudes regarding people living with HIV/AIDS. For the purpose of the study, his categorical variable has been recoded into 2 coding options:

1: HIV positive

2: HIV negative is including those with inconclusive results (indeterminants).

The Dominican Republic did not report any indeterminant test results; while Haiti counted 22 cases, which were considered "negative" in the recoding process. Furthermore, 5% of the sample in the Dominican Republic (2,732 people) and 34% of the Haitian study participants (5,463 people) were not tested for HIV.

Attitudes towards people living with HIV/AIDS:

Stigma and discrimination were measured by assessing the negative attitudes of the survey respondents toward persons living with HIV/AIDS. The response variables will be used to create a final score for each participant.

Six variables were identified as true indicators of the attitudes of the survey respondents towards people living with HIV/AIDS. An attitude score was created for the justification of such attitudes. An attitude score ≥5 will be documented as a positive attitude. A score of 3 or 4 is considered as fair attitude. An attitude score of less than 3 is considered as a negative attitude.

The creation of three categories will allow for more distinct descriptive statistics. However, for the univariate analysis, the attitude score should be featured as dichotomous. A final recode will consider positive attitude coded as"1" and negative and fair attitude coded as"0".

Beliefs related to HIV

Four questions were included in the surveys that could tell about the beliefs of the respondents. A belief score was created from the four items used in the survey. A study participant with a total score of 0 or 1 is recoded 0 and is labeled as having incorrect beliefs about the HIV disease. A participant with a score of 2 or 3 is recoded 1 and is labeled as having fair beliefs. A participant with a perfect score of 4 is recoded 2 and assumed to have correct beliefs.

Obviously, this belief score is expected to have some correlation with the attitude score. For the purpose of the study, the belief score will be studied as an outcome variable that can be predicted by the explanatory variables. Like the attitudes score, the belief score will be recoded for univariate analyses with one independent variable at a time. The correct beliefs will be recoded as 1 and the fair or incorrect beliefs will be recoded as 0.

Statistical Methods

The data was analyzed using SPSS 18.0 PASW. Descriptive statistics were performed to explain the distribution of the data according to the different variables of

interests. An independent T-test was used to compare the means and the standard deviations for the variable "age" which was the only continuous variable of interest. A significant difference will be assumed at a p-value less than 0.05.

Chi-square statistics were performed to describe the absolute values, the distribution of the categorical variables and to determine any significant relationship between the variables across the two countries. P-values for X^2 square tests were reported for each categorical variable in the data set. The interpretation of the results will be provided in accordance to their p-values with a significance level (α=0.05).

Logistic Regression:

Binary logistic regression was conducted to determine the degree of association between the dependent variable with the selected independent variables such as age, gender, education level. Thus, univariate and multivariate analyses were also performed to test the significance of any association between the independent and the dependent variables. Univariate analysis will take into account each independent variable at a time and its association with a dependent variable. For example, the association between age and the attitudes score is a univariate analysis. Initially, the data should be split by country when running the analyses in order to compare Haiti and the Dominican Republic at every step.

The multivariate data analysis involves observation and analysis of all the statistical variables of interest at the same time. The main purpose of this procedure is to determine which variable is a good predictor of the relationships hypothesized

according to the association with the outcome variables. A multiple logistic regression will determine which predictors are important and how they affect the respondent's attitudes towards people living with HIV. Furthermore, this complex analysis will allow us to calculate an odds ratio and report a p-value that measures the importance of a predictor variable on the response variable controlling for potential confounders.

Finally, the stepwise multiple regressions will rank the importance of independent or predictor variables in explaining the outcome variable. The ultimate goal is to have a parsimonious model with the best predictors of positives attitudes towards people living with HIV/AIDS by eliminating insignificant predictors for both countries. A significant association is assumed for a given p-value less than or equal to 0.05. The stepwise logistic regression will also be conducted to determine the association of the independent variables of interest and HIV-related beliefs.

The binary coding was applied to transform the categorical variables in binary status for the outcome variables. This step is fundamental for logistic regression analysis purposes.

Correlation Coefficient between Attitude Score and Belief score.

Correlation coefficients were obtained to determine whether or not there is a correlation between a person's attitude toward people living with HIV and a person's beliefs about HIV.

The Spearman correlation was used to measure the linear association between the attitudes and the belief score. The correlation reported from the analysis and the

statistical significance will demonstrate the orientation of the association and the strength of a linear relationship between the two outcome variables.

The Statistical Analysis Software (SAS) version 9.1 was used to standardize the Haitian population to the Dominican Republic with regard to age, gender, socio-economic status and place of residence. The purpose of this procedure is to establish whether or not the attitudes and the beliefs of Haitian people differ from the Dominican Republic when adjusting to the sociodemographic variables aforementioned.

CHAPTER IV

RESULTS

Population Characteristics.

Cross-tabulation procedures were used to describe the distribution of the different variables of interest across the two countries. Table 1 outlined the descriptive statistics of the survey population. Overall, 55,170 Dominicans and 15,715 Haitians participated in the survey used for the comparison Gender is quite normally distributed in the Dominican Republic sample (53.5% females versus 46.5 males). This distribution is uneven in Haiti where females accounted for 68.5% of the sample. Approximately 58% of the respondents in Haiti were between 15-29 years-old (Mean=28.97, SD=10.95) and 50.2% of the survey participants in Dominican Republic were 30 years and older (Mean=31.02.SD=11.6). In Haiti, 53.7% of the respondents resided in rural areas, while in the Dominican Republic, 41.9% of respondents resided in rural areas.

Approximately, 37% of the Haitian DHS survey respondents and 50.4% of the Dominican survey respondents were considered poor. According to the education level, 41.2% of the Haitian participants and 44.8 % of the Dominicans had obtained primary school education but had not attended secondary schools while 22.6 % of the Haitian samples versus 9.2% of the Dominicans were illiterate. Nearly half of the participants

(44%) in Haiti were married, while in the Dominican Republic 41.2% of the respondents reported themselves living with someone.

HIV test results were obtained for 95% of the Dominican participants and 65% of the Haitian participants. It is essential to note that the HIV test was not performed for the male participants in the Haitian dataset.

The Chi-square statistics revealed a statistically significant difference of the all aforementioned variables across the two countries. The p-values were <0.001 for age, gender, place of living, education level, wealth status, marital status and HIV status meaning a difference between the distribution of the variables of interest between Haiti and the Dominican Republic.

Dependent variables

***Stigmatizing attitudes towards HIV infected patients*:** An attitude score was created according to the six items identified in the survey. For analytic purposes, all the participants who respond "Do not know" or "not sure" are added to the group of people whose answers were indicators of negative attitudes

In the Haitian survey, 61.9% of the participants stated that they are willing to care for relatives with HIV/AIDS compared to 86.2% in the Dominican Republic. When asked whether or not those with HIV/AIDS should be allowed to continue to teach, 35.7% of Haitians and 44.4% of Dominicans approved. The third survey item asks about participants' willingness to purchase vegetables from a vendor infected

with HIV. Only 31.2% of Haitians surveyed and 37.4 % of Dominicans expressed such willingness.

For the next three items, a disagreement with the statement is considered a positive attitude. 73.5% of Haitians and 67.3% of Dominicans disagreed with the statement: "People with HIV should be forced to keep infection secret". Approximately 62% of the Haitian respondents and 73% of Dominicans disagreed that people with HIV/AIDS should be ashamed of themselves. Not surprisingly, the percentages of participants who disagreed that HIV infected people should be blamed for their condition are very similar to those of the previous statement (63% of Haitians, and 73% of Dominicans). See Tables 3.1 to 3.6

Chi-square statistics performed for each item mentioned above showed that there is not a statistical difference among age groups and gender in Haiti when answering to the questions whether or not participants are willing to care for relatives with HIV/AIDS. The chi-square also revealed that there was no statistical difference between education levels when the Haitian participants answered the statement about the agreement to allow or not PLWHA to keep their infection secret. Also, there was not a significant difference of gender distribution regarding the statement related to the agreement to blame people living with HIV/AIDS. Otherwise, the chi-square statistics showed a statistical difference among gender, age groups, educational level, and place of living, wealth and marital statuses, for all the other statements used for scoring the stigmatizing attitudes. Interestingly, the chi-square tests used for the HIV sero-status for all the six statements showed a significant difference only in the question about the

agreement or not to allow teachers with HIV to continue their activities. See Tables 4.1 to 4.6

In the Dominican Republic survey, the Chi-square statistics found a statistically significant difference for all the socio-demographic variables of interest in response to the statements related to the stigmatizing attitudes. However, when considering the HIV serostatus, the chi-square analyses only showed a significant difference between groups regarding their responses to two statements: "PLWA should be ashamed of themselves" and "PLWA should be blamed for their infection".

An attitude score obtained from the six items would consider participants with a score of or '6 or 5 'as having positive attitudes toward people living with HIV/AIDS. Only 25.5% of the Haitian participants and 35% of the Dominicans expressed such positive attitudes. Participants with a score of '3' and '4' were classified as having fair attitudes (41.6 % for Haiti and 45.9% for DR) while those who scored below 3 were classified as having negative attitudes (32.3% for Haiti and 17.9 % for DR). See Table 3.8

For parsimonious reasons, participants with negative and fair attitudes were combined for comparison with the group of participants with positive attitudes. Thus, the dichotomous outcome showed a higher number of participants with negative attitudes (73.9% for Haiti and 63.8% for D.R).

HIV-Related Beliefs: It is expected that people with correct beliefs about HIV/AIDS would express more positive attitudes toward people living with HIV/AIDS. In the current surveys, four questions assessed the accuracy of the beliefs of the participants. For instance, the percentages of participants who disagreed with the statement that AIDS can be transmitted by mosquito bites are respectively 52% for Haiti and 53.3% for Dominican Republic. 73.8 % of the Haitian participants and 72.7 % of the Dominicans disagreed that a person could get AIDS by sharing food with a HIV infected patient. Furthermore, 72.3 % of Haitians and 88.7 % of Dominicans did not believe that AIDS could be transmitted by supernatural causes. Finally, a high percentage of the respondents, 85.2 % Haitians and 90.8% Dominicans, believed that a healthy-looking person can be infected with HIV/AIDS. See Tables 3.8 to 3.12.

Only 35.7% of the Haitian survey respondents and 41.2% of the Dominicans answered all four belief statements correctly and were considered to have correct beliefs about HIV/AIDS. Again, for statistical purposes, all participants with a score below 4 were considered to have misconceptions about HIV/AIDS without regard of the number of true questions answered.

<u>Univariate analysis with the attitude score</u> (See Table 6.1)

Age

The binary logistic regression for selected independent variables revealed that overall in both countries older people expressed more stigmatizing attitudes toward people with HIV/AIDS. For instance, people aged 15 to 29 years-old have an

increased odds (47% In Haiti and 45% in the Dominican Republic) of displaying positive attitudes toward people living with HIV when compared to the group of people aged between 45 and 69 year-old .

Gender

The univariate analysis showed that, in Haiti, males are more likely to express positive attitudes (OR=1.53;95%CI=1.43-1.66),p<0.001 whereas males in the Dominican Republic have about a 52% decreased odds of expressing positive attitudes toward people living with HIV/AIDS(PLWHA) (OR=0.48; 95%CI=0.46-0.50),p<0.001

Wealth Status

Haitian respondents with poor economic status have a 72% decreased odds of having positive attitudes using the rich group as the reference group (OR=0.28; 95%CI=0.26-0.30), p<0.001). The same trends were observed with the Dominican survey respondents where poor participants had approximately 63% decreased odds of expressing positive attitudes (OR=0.36; 95%CI= 0.35-0.38), p<0.001

Place of living

The results of the univariate analyses showed that the Haitian respondents living in rural areas were less likely to have positive attitudes compared to those living in urban areas(OR=0.43;95%CI=0.40-0.47), p<0.001. Similarly, the Dominican

Republic participants living in rural areas have a 46% decreased odds of positive attitudes (OR=0.56; 95%CI =0.54-0.58) $p<0.001$.

Education level

The odds of possessing positive attitudes logically decreased as the education level went down. For instance, when using Haitian respondents with a higher education level as a reference group, the illiterate participants had a 93% decreased odds of expressing positive attitudes toward people living with HIV/AIDS, the group with primary education had a 91% decreased odds, while the group with secondary education had a 70% decreased odds. The same patterns were observed in the Dominican population where the decreased odds were respectively 88%, 79% and 50% for the illiterate, the group with a primary education and the group with a secondary education. The odds ratio, confidence intervals and p-values can be seen in Table 6.1

Marital Status

According to the univariate analysis of the Haitian respondents, widowed (OR= 1.26; 95%CI=1.12-1.42), $p<0.001$ and never married participants (OR= 1.40; 95%CI =1.29-1.52), $p<0.001$ were found to have significantly increased odds of having positive attitudes toward HIV-infected people. Married participants were used as the reference group for this analysis.

Meanwhile, the results of the Dominican survey demonstrated that only the group of participants living in a free union had positive attitudes towards people living

with HIV/AIDS (OR=1.35; 95%CI =1.02-1.50), p=0.002. Respondents reporting all other marital statuses were found to have significantly decreased odds of having positive attitudes.

HIV status

The association of HIV status with the attitudes score obtained was also tested. Respondents who tested positive for HIV in the Dominican Republic demonstrated an increased odds of 24% of having positive attitudes (OR=1.24; 95%CI=1.03-1.50), p=0.024. Conversely, the association was found to be statistically insignificant in Haitian participants (OR, 0.88; 95%CI (0.65-1.22), p<0.466.

HIV-related beliefs.

A test of association between participant beliefs about HIV and participants' attitude scores was also performed. The results revealed that people with misconceptions about the transmission of HIV were more likely to have stigmatizing attitudes in both Haiti and the Dominican Republic. According to the simple logistic regression statistics, Haitian respondents with incorrect beliefs about HIV had 74% decreased odds of having positive attitudes towards PLWA (OR= 0.26; 95%CI =0.24-0.28) p<0.001. In the Dominican Republic, the trends are quite similar. Participants with incorrect beliefs were found to have a 67% decreased odds of expressing positive attitudes (OR= 0.34; 95%CI =0.33-0.35), p<0.001.

Univariate analysis with HIV-related beliefs as the dependent variable

Since it is hypothesized that attitudes towards people with HIV could be influenced by their beliefs about HIV, a logistic regression analysis has been performed with the selected independent variables such as age, gender, place of living, wealth and education level and marital status. See Table 6.2

Age is associated with the HIV-related beliefs. In both countries, participants aged between 15 and 29 years old are more likely to have correct beliefs about the disease compared to the participants over the age of 44 (OR=1.51; 95%CI=1.35-1.68),p<0.001 for Haiti and (OR=1.26; 95%CI=1.20-1.32),p<0.001 for the Dominican Republic.

As seen in the logistic regression with the attitudes scores, Haitian males were found to have an increased odds of having correct beliefs (OR=1.24; 95%CI =1.15-1.32), p<0.001 compared to females. The opposite trend was observed in the Dominican Republic where males had a 34% decreased odds of having correct beliefs with the females serving as the reference group(OR=0.66; 95%CI=0.63-0.68),p<0.001.

In both countries, wealth, place of living and education were significantly associated with having correct beliefs. Participants with higher education, higher wealth status and those living in urban areas were more likely to have correct beliefs. See Table 6.2.

The test of association between HIV-related beliefs and marital status showed a significant increased odd of having correct beliefs about HIV for the Haitian

participants who were never married or who had been widowed. However, in the Dominican Republic, participants reporting any relationship status other than free union had a decreased odd of having correct beliefs. Only participants in free relationships had an increased odds of having correct beliefs (OR=1.21; 95% CI=1.00-1.46), p=0.05. Again, the trends were very similar when the logistic regression was performed with the attitudes score.

Surprisingly, there were no significant differences found between beliefs expressed and HIV status in either country. Results showed a statistically insignificant decreased odds of having correct beliefs for the HIV positive respondents in Haiti (OR=0.97; 95%CI =0.74-1.27), p=0.819, and an insignificant increased odd in the Dominican Republic (OR=1.1; 95%CI =0.90-1.32), p= 0.351.

Multivariate analysis

The results of the multiple logistic regression models showed many discrepancies when compared to the univariate statistics. In the analysis of Haiti survey, age, place of living and marital status are not associated with the expression of attitudes toward people living with HIV/AIDS. However, males were inclined to display more positive attitudes than females (OR= 1.60; 95%CI =1.47-1.74), p<0.001. Again, wealth status and education attainment were highly associated with the acquisition of positive attitudes suggesting that wealthier and well-educated individuals tend to have more correct attitudes toward people living with HIV/AIDS.

The interaction between sex and education has been tested to understand the lack of tolerance of Haitian women towards people living with HIV/AIDS. The results did not show any significant interaction between the two variables.

In the Dominican Republic, the multivariate analysis showed a highly significant statistical difference for groups in regard to gender, wealth, education and place of living. The Dominican male participants, unlike the Haitian males, had a decreased odds of having positive attitudes (OR=0.53; 95%CI =0.51-0.55), $p<0.001$. Living in rural settings was found to be associated with less tolerant positive attitudes (OR=0.81; 95%CI =0.78-0.85), $p<0.001$. Not surprisingly, wealth status and education attainment were also shown to be good predictors of positive attitudes toward people living with HIV/AIDS and Dominican males between 30 and 44 years old were found to be more tolerant (OR=1.22; 95%CI=1.15-1.33),$p<0.001$. The multivariate analysis showed that married participants in the Dominican Republic tend to express more positive attitudes toward those with HIV compared to unmarried participants. See Table 6.3

Stepwise logistic regression of the selected variables with the attitudes score

The stepwise logistic regression using forward LR in the SPSS procedure revealed the best predictors of positive attitudes toward people living with HIV/AIDS. The variables retained in the analysis for Haitian' survey respondents were gender,

wealth status and education level, thus confirming the significant associations found in the previous analyses. See Table 6.5

The final stepwise comparison of the Dominican Republic survey retained all t six variables of interest as good predictors of attitudes towards people living with HIV/AIDS validating the previous results of the multiple logistic regressions. See Table 6.5

Correlation of the attitudes score with the belief score

A statistically significant correlation between HIV-related beliefs and attitudes towards PLWHA was found (r (54508) =0.30, p<0.001) for the Dominican Republic and (r (15623) =0.35, p<0.001) for Haiti. Correlation Coefficients between the belief score and the attitude scores were 0.30 in the Dominican Republic and 0.34 in Haiti. The Spearman correlation coefficient using bivariate statistical analyses concluded a significant statistical positive association at the 0.05 level (p<0.001, 2-tailed) between beliefs score and attitude score. Correct beliefs about HIV/AIDS are associated with more positive attitudes towards PLWHA. A linear relationship was confirmed between the variables, suggesting that the participants' beliefs about HIV have a significant effect on their attitudes toward people living with HIV/AIDS.

The overall association between the selected independent variables and attitudes toward people living with HIV/AIDS, adjusting for country, has been analyzed. A new logistic regression merging the two countries was conducted. The analysis showed that Haitian respondents had less tolerant attitudes than those in the

Dominican Republic. Using the Dominican Republic as a reference, the standardized logistic regression showed that Haiti has a 34% decreased odds of having positive attitudes towards people living with HIV(OR=0.66; 95% CI=0.630-0.695), $p<0.001$. See Table 7.1

The same procedures were performed, this time using the HIV-related beliefs as the outcome. Not surprisingly, the results displayed a significant decreased odd for Haitians to have correct HIV-related beliefs compared to the Dominican Republic. (OR=0.87; 95% CI= 0.83-0.91), $p<0.001$. See Table 7.2.

Data standardization

Finally, SAS programs were used to standardize the population of Haiti to the population of the Dominican Republic with regard to age, gender, residence, wealth status and education level. Intriguingly, the standardized results suggested that 35.1% of Haitians would have positive attitudes which are very similar to the Dominican Republic with 35.5% of respondents having positive attitudes. The previous results using unstandardized data showed that only 25.5% of Haitian respondents had positive attitudes. See Table 3.8.

The standardized results for HIV-related beliefs revealed that Haitians would have more accurate beliefs (43.7%), scoring higher than the Dominican Republic (41.2%). The unstandardized percentage of correct beliefs among Haitians was 35.7%. These findings suggest that the two countries have very similar results when differences in socio-demographic characteristics are accounted for.

CHAPTER V

DISCUSSION

Results of these cross-sectional studies demonstrated that a substantial number of people in the Hispaniola Island possess stigmatizing attitudes towards people living with HIV/AIDS. In Haiti, males tend to have more positives attitudes than women contrasting with the trends in the Dominican Republic. The education level did not play a role in the lack of tolerance of Haitian women and the interactive effects of gender and education were found insignificant. The Dominican gender differences were consistent with other studies (Canadian Tracking Survey, 2006; Mahdi&al) suggesting that women may be generally more compassionate and supportive toward those affected by severe conditions. However, the gender differences reported by the studies reviewed in the literature produced mixed results depending of the type of question asked. Some will argue that women in the Dominican Republic might be more liberal and more open-minded than Haitian women but this is relatively difficult to assess for a true explanation of the differences between the two countries.

The overall findings that older people have the least tolerant attitudes toward people living with HIV/AIDS reflect the stigmatization of those with the disease. Older people are more inclined to label HIV-infected people as immoral or flawed. The significant difference observed in the Dominican Republic between the attitudes of older and younger age groups is consistent with the study conducted in Botswana (Letamo, 2003) as well in Hong-Kong (Lau&Tsui, 2005). However, the insignificance

of the association among Haitian respondents may be explained by a potential influence of respondents' place of living or socioeconomic status on the relationship between age and attitudes toward people living with HIV/AIDS. The mixed results are similar to those in the Kenyan study where younger respondents possessed higher levels of stigmatizing attitudes (Hamra et al, 2006).

In the Dominican Republic, place of living is associated with the respondents' attitudes toward people living with HIV/AIDS. People living in urban areas tend to exhibit more positive attitudes than those residing in rural areas. These findings are consistent with previous studies such as the Turkish survey (Ayranci, 2005), indicating there may be greater access to accurate information about HIV/AIDs in urban areas. The insignificant association between place of living and attitudes observed in Haiti may be explained by the constant migration of the population throughout the country.

Both wealth and education attainment were found to have a significant influence on the attitudes of the survey respondents toward people living with HIV/AIDS. Analyses of survey responses in both Haiti and the Dominican Republic demonstrate a strong association between the variables. As expected, these findings are congruent with similar studies reported elsewhere that have documented relationships between wealth, education and attitudes toward PLWA (Al-Owaish et al, 1999), (Letamo, 2003). These findings strongly suggest that educational programs should target the poor and those with low educational attainment in order to address misconceptions related to HIV, which are prevalent among these groups. In a country like Haiti, where the vast majority of the people live below the poverty line, efforts to

promote tolerant attitudes toward people living with HIV/AIDS should be consistent and widespread.

Furthermore, the multiple regression analyses have demonstrated a strong association between marital status and tolerant attitudes toward people living with HIV only in the Dominican Republic. Married participants had more positive attitudes when compared to single respondents or the widowed, for example, in accordance with the aforementioned studies by Hamra et al. (2006) and Al-Owaish et al. (1999). In contrast, some studies, such as the study conducted in China by Lau et al. (2005), reported that single respondents tend to have less stigmatizing attitudes. The mixed results observed in the studies reported correspond with the insignificant relationship observed among Haitians between marital status and attitudes. These findings indicate that marital status may not be sufficient as a single factor in explaining HIV-related attitudes. Other key socio-demographic characteristics such as wealth status, education level, and even place of living, should be taken into account when discussing the results.

The relationship between HIV status, HIV–related beliefs and attitudes towards people living with HIV/AIDS was analyzed to see if individuals who tested positive for HIV were more tolerant toward others known to be infected. In Haiti, the results indicated that there is not a statistically significant association between HIV status and stigmatizing attitudes. The fact that the survey respondents were not aware of their status at the time the surveys were conducted has to be considered. However, the significant association in the Dominican Republic may reflect the fact that most

people tested for HIV could be aware about potentially risky behaviors and an increased probability of becoming infected. People are risk to be infected could be more tolerant since they can perceive themselves as being among those in the stigmatized populations. It could be expected that HIV positive individuals would have significantly more misconceptions about HIV. The results did not demonstrate any clear association between HIV sero-status and HIV-related beliefs in either country.

The adjustment for country in the logistic regression showed that, in general, the Haitians seemed to have more stigmatizing attitudes and less correct HIV-related beliefs than the Dominicans. This finding is in accordance with the previous results where the Dominican Republic had better outcomes when comparing the different logistic regression models of the selected independent variables.

However, the attitudes of the Haitian respondents when adjusted for socio-demographic variables (age, gender, residence, wealth and education) did not differ markedly from the Dominican Republic. Despite some cultural differences between the two countries, the HIV-related challenges and misconceptions are similar in the islands where poverty and lack of health education are prominent.

The linear association between perceptions about the disease and stigmatizing attitudes is essential to outline since it reflects the impact of acquired beliefs on the development of negative attitudes. This significant finding in both countries demonstrated the gaps still existing in health-related communication programs. As

seen in the previous analyses, beliefs and attitudes are found to be associated with the socio-economic status. Therefore, educational intervention programs should target these populations in order to effectively address misperceptions about HIV that are largely responsible for intolerant attitudes towards people living with HIV/AIDS.

Study Limitations

This study has several limitations:

The survey questionnaire type may induce social desirability bias. Individuals may be reticent to express negative attitudes towards people living with HIV. It is difficult to validate the respondents' answers. Thus, the results of the study may underestimate the true level of attitudes and incorrect beliefs regarding HIV. Furthermore, the statements issued are hypothetical, how people respond to the survey statements or questions may be different than what they would actually do in a given situation. Also, the cross-sectional nature of the survey only allows for an association between variables of interest at the same point of time. Any cause and effect relationships could not be ascertained.

The score created to measure the tolerance scale was relatively simple. It was restricted to only six items, and this could limit a fair examination of the true attitudes. Furthermore, the following two items used to compute attitude scores could be considered related: "People with HIV-AIDS should be ashamed" and "People with HIV should be blamed for bringing the disease into the community". The descriptive

statistics have shown basically the same percentage for the two items in both countries (See Tables 3.5-3.6).

Another limitation is the use of secondary data, which has limited the investigators to the variables collected by the survey. The variable, “religion”, which could be a variable of interest in the analysis, has not been reported in the final data. Moreover, the six questions forming the attitudes score are those provided by the Demographic Health Survey. Other questions related to stigmatizing attitudes have been were not asked by the survey such as one’s likelihood of shaking hands with an HIV- infected individual or the fairness of isolating persons living with HIV/AIDS.

Furthermore, the data were not weighted in order to represent the population from which the samples were drawn. The weighting process gives more appropriate answers when conducting prevalence studies. Since the study was about a comparison of attitudes between the two countries, there was not a significant impact on the results analysis.

This study was limited to a comparison between Haiti and the Dominican Republic in terms of the relationships between selected variables and attitudes toward people living with HIV/AIDS. Some associations have not been analyzed, such as respondents’ knowledge about the usual means of transmission and the symptoms of the HIV disease. The investigation focused more on the beliefs, which might be a reflection of one’s knowledge. Also, other variables of interest, such as sexual

behaviors, have been omitted in the analysis since there were not included in the study objectives.

Recommendations

The results of this study showed that the prevalence of stigmatizing attitudes is an important issue in both Haiti and the Dominican Republic. Future research is needed to validate the actual findings and measure the potential relationship between HIV status and related attitudes. The Demographic Health Survey is one of the rare studies that selects questions to assess stigmatizing attitudes. Other organizations and researchers should test the reliability of such surveys by using a wider range of items to create a more valid score of attitudes.

The prevalence of HIV disease is decreasing in both countries, which is most likely due to massive education campaigns taking place throughout the islands. Because attitudes and beliefs are interrelated, program implementers should sustain their IEC (Information-Education-Communication) interventions. Erroneous beliefs and misconceptions are obstacles in fighting against stigmatization and discrimination, and also tend to encourage the spread of the HIV disease. The use of community leaders in communication and education efforts is a key strategy for disseminating accurate information about HIV/AIDS to the most (reticent-this word means silent or reluctant- you may want to choose another word here) people. The psychological

models that attempted to explain the attitudes of the individuals may help to define strategies to be used by the local community leaders.

Since education is significantly associated with one's attitudes toward people living with HIV/AIDS, it is essential for the Ministry of Education in both countries to incorporate age- appropriate HIV education and information about other severe diseases into their curriculums. Also, in most developing countries such as Haiti and Dominican Republic, religious leaders tend not to be supportive of the people living with HIV. As spiritual leaders, they should use their power to encourage the church members to be more tolerant towards HIV infected individuals.

Conclusion

Despite the limitations of the study, the results are significant enough to provide insight into HIV stigmatizing attitudes and related beliefs. To control the spread of HIV the epidemic, it is crucial to address stigmatization and discrimination against those with the disease. As a result of reduced stigma, those infected may be more likely to access the healthcare system earlier without fear of being blamed or judged. Finally, community mobilization, political involvement, policy development and health education are essential to challenge misconceptions about the disease and change negative attitudes toward people living with HIV/AIDS.

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Table 1.1 List of independent variables (Data Source: DHS)

Variable	Description	Coding	Type

Gender	Male or Female	1 = Male 2 = Female	Categorical
Age group	Age at the time of the survey has been recoded to 3 groups	1 = 15-29 2 = 30-44 3 = 45-69	Continuous and Interval
Place of Living	Urban or Rural	1=Urban 2=Rural	Categorical
Wealth Index	Originally the scale contains five groups. A new recoding creates a scale of three options	1=Poor 2=Middle 3=Rich	Categorical
Educational attainment	This variable was chosen for better analysis purposes instead of literacy.	1 = No education 2 = Primary education 3= Second. education 4 = Higher education	Categorical
Marital Status	Six Options are Available. In order to have married people as referent, we recoded the groups	1 = Never married 2 = Living together 3 = Widowed 4 = Divorced 5= Not Living together 6 = Married	Categorical
HIV Status	HIV status could be positive, negative or indeterminant.	1=Positive 2=Negative/Indeterminant	Categorical

LIST OF OUTCOMES VARIABLES

1-2. Outcome variable: attitudes towards PLWA

VARIABLE	DESCRIPTION	CODING	TYPE
Attitude Score: **SIX ITEMS**	Should HIV infected people allowed to keep infection secret?	Yes=0 No=1	Dichotomous
	Would you provide care for relatives with HIV?	Yes=1 No=0	Dichotomous
	Should HIV infected teachers continue to teach?	Yes=1 No=0	Dichotomous
	Would you buy vegetables from an infected vendor?	Yes=1 No=0	Dichotomous
	Should people with HIV be ashamed of themselves?	Yes=0 No=1	Dichotomous
	Should people with HIV be blamed for spreading the disease in the community?	Yes=0 No=1	Dichotomous

Table 1.3: Outcome Variable: HIV-related beliefs

VARIABLE	DESCRIPTION	CODING	TYPE
Belief Score: **FOUR ITEMS**	Can someone get AIDS from mosquito bites?	Yes=0 No=1	Dichotomous
	Can someone get AIDS by sharing food with an HIV infected person?	Yes=0 No=1	Dichotomous
	Can a healthy looking person get HIV/AIDS?	Yes=1 No=0	Dichotomous
	Can someone get AIDS by a witchcraft or supernatural causes?	Yes=0 No=1	Dichotomous

Table 2.1. Continuous variables -Descriptive statistics

AGE

	HAITI	**Dominican Republic**	**Independent t-test**	**p-value**
Number of respondents	**15715**	**55170**	t=19.837 when equal variances assumed	p<0.001
Means(SD)	**28.97 ±10.95**	**31.02± 11.6**		

Table 2.2. Independent variables – Descriptive chi-square statistics

Variables	Haiti N=15715		D.R N=55170		Totals N=70885		p-value
	N	%	N	%	N	%	
Gender							p<0.001
Male	4958	31.5	27975	50.7	**32933**	**46.5**	
Female	10757	68.5	27195	49.3	**37952**	**53.5**	
Age							
15-29	9134	58.1	27519	49.9	**36653**	**51.7**	
30-44	4675	29.7	19117	34.7	**23792**	**33.6**	
45-69	1906	12.1	8534	15.5	**10440**	**14.7**	
Wealth							p< 0.001
Poor	5815	37	27793	50.4	**33608**	**47.4**	
Middle	3202	20.4	10876	19.7	**14078**	**19.9**	
Rich	6698	42.6	16501	29.9	**23199**	**32.7**	
Place of living							p<0.001
Urban	7271	46.3	32045	58.1	**39316**	**55.5**	
Rural	8444	53.7	23125	41.9	**31569**	**45.5**	
Educational Attainment							p<0.001
No education	3555	22.6	2967	5.4	**6522**	**9.2**	
Prim education	6472	41.2	25302	45.9	**31774**	**44.8**	
Sec education	5223	32.2	19328	35	**24551**	**34.6**	
Higher education	465	3	7573	13.7	**8038**	**11.3**	
Marital Status							p<0.001
Never married	5696	36.2	16571	30	**22267**	**31.4**	
Married	6912	44	6954	12.6	**13866**	**19.6**	
Living together	1827	11.6	22716	41.2	**24543**	**34.6**	
Widowed	255	1.6	458	0.8	**713**	**1**	
Divorced	20	0.1	8010	14.5	**8030**	**11.3**	
Not living together	1005	6.4	461	0.8	**1466**	**2.1**	
HIV status	10252		52438				p<0.001
Negative	9998	97.5	51979	99	61977	98.9	
Positive	232	2.3	459	0.9	691	1.1	
Indeterminant	22	0.2	0	0	22	0.0	

Table 2.3 Outcome variables. Descriptive chi-square Statistics

Variables	Haiti		DR		Totals		p-value
	N	%	N	%	N	%	
Attitude score	**15625**		**54510**		**70135**		p<0.001
Negative	**5079**	32.5%	**9874**	18.1%	**14953**	21.3%	
Fair	**6532**	41.8%	**25309**	46.4%	**31841**	45.4%	
Positive	**4014**	25.7%	**19327**	35.5%	**23341**	33.3%	
Belief score	**15625**		**54509**		**70134**		p<0.001
Negative	**2233**	14.3%	**3618**	6.6%	**5851**	8.3%	
Fair	**7778**	49.8%	**28168**	51.7%	**35946**	51.3%	
Correct	**5614**	35.9%	**22723**	41.7%	**28337**	40.4%	

3.1 Frequency of the answers related to the willingness to care for relatives with HIV/AIDS

Country		Frequency	Percent	Missing
HAITI	**Yes**	9731	61.9	
	No	5877	37.4	
	Total	15608	99.3	107(0.7%)
DR	**Yes**	47548	86.2	
	No	6934	12.6	
	Total	54482	98.8	688(1.2%)

3.2 Frequency of the answers related to the agreement of allowing PLWA to continue to teach.

Country		Frequency	Percent	Missing Total
HAITI	Yes	5615	35.7	
	No	9996	63.6	
	Total	15611	99.3	104(0.7%)
DR	Yes	24503	44.4	
	No	29858	54.1	
	Total	54361	98.8	809(1.5%)

3.3. Frequency of the answers related to the willingness to buy vegetables from vendors with HIV/AIDS.

Country		Frequency	Percent	Missing Total
HAITI	Yes	4898	31.2	90(0.6%)
	No	10727	68.3	
	Total	15625	99.5	
DR	Yes	20612	37.4	678(1.2%)
	No	33880	61.4	
	Total	54492	98.8	

3.4. Frequency of the answers related to the agreement to allow people to keep infection secret.

Country		Frequency	Percent	Missing Total
HAITI	Yes	4068	25.9	98(0.6%)
	No	11549	73.5	
	Total	15617	99.4	
DR	Yes	17360	31.5	696(1.3%)
	No	37114	67.3	
	Total	54492	98.8	

3.5. Frequency of the answers related to the shame feelings regarding PLWA.

Country		Frequency	Percent	Missing Total
HAITI	Agree	5812	37	
	Disagree	9796	62.3	
	Total	15608	99.3	107(0.7%)
DR	Agree	13738	24.9	
	Disagree	40667	73.7	
	Total	54405	98.6	765(1.4%)

3.6. Frequency of the answers related to blaming PLWA.

Country		Frequency	Percent	Missing Total
HAITI	Agree	5665	36	
	Disagree	9969	63.4	
	Total	15624	99.4	91(0.6%)
DR	Agree	14090	25.5	
	Disagree	40384	73.2	
	Total	54474	98.7	696(1.3%)

3.7 Attitude score

	Haiti		DR	
Score	**N**	**%**	**N**	**%**
0	383	2.4	367	0.7
1	2062	13.1	2922	5.3
2	2634	16.8	6585	11.9
3	3468	22.1	10746	19.5
4	3064	19.5	14563	26.4
5	2516	16	11716	21.2
6	1498	9.5	7611	13.8
Total	15625	99.4	54510	98.8
Missing	90	0.6	660	1.2

3.8 Distribution of the attitude score into three categories

	Haiti		DR	
Score	**N**	**%**	**N**	**%**
Negative attitude Score =0,1,2	5079	32.3	9874	17.9
Fair Attitude Score=3,4	6532	41.6	25309	45.9
Positive Attitude Score=5,6	4014	25.5	19327	35

3.9 Frequency of the answers related to the belief that AIDS can be transmitted by mosquito.

Country		Frequency	Percent	Missing Total
HAITI	Yes	7454	47.7	
	No	8171	52	
	Total	15625	99.4	90(0.6%)
DR	Yes	25066	45.4	
	No	29431	53.3	
	Total	54497	98.8	673(1.2%)

3.10 Frequency of the answers related to the belief that one's could get AIDS by sharing food with a PLWA.

Country		Frequency	Percent	Missing Total
HAITI	Yes	4026	25.6	
	No	11595	73.8	
	Total	15621	99.4	94(0.6%)
DR	Yes	14333	26	
	No	40117	72.7	
	Total	54450	98.7	720(1.3%)

3.11. Frequency of the answers related to the belief that a healthy person can have AIDS.

Country		Frequency	Percent	Missing Total
HAITI	Yes	13387	85.2	
	No	2222	14.1	106(0.7%)
	Total	15609	99.3	
DR	Yes	50074	90.8	
	No	4248	7.7	848(1.5%)
	Total	54322	98.5	

3.12 Frequency of the answers related to the belief that AIDS could be transmitted by witchcraft or supernatural causes.

Country		Frequency	Percent	Missing Total
HAITI	Yes	4253	27.1	
	No	11362	72.3	100(0.6%)
	Total	15615	99.4	
DR	Yes	5433	9.8	
	No	48956	88.7	781(1.4%)
	Total	54389	98.8	

3.13 Belief Score

	Haiti		DR	
Score	**N**	**%**	**N**	**%**
0	505	3.2	508	0.9
1	1728	11	3110	5.6
2	3003	19.1	9928	18
3	4775	30.4	18240	33.1
4	5614	35.7	22723	41.2
Total	15625	99.4	54509	98.8
Missing	90	0.6	661	1.2

3.14. Distribution of the belief score into 3 categories

	Haiti		DR
Score	**N**	**%**	**N**
			%
Wrong beliefs	2233		3618
Score =0,1	14.2		6.6
Fair belief	7778		28168
Score=2,3	49.5		51.1
Positive belief	5614	35.7	22723
Score=4			41.2

Table 4.1 Chi-Square statistics: Distribution of the willingness to care for relatives with HIV/AIDS by demographic characteristics.

Variables	Haiti	N=15608		DR	N=54482	
	N	%	p-value	N	%	p-value
Age			0.065			<0.001
15-29	5717	63.1		23530	86.8	
30-44	2854	61.3		16688	88	
45-69	1160	61.1		7350	87.1	
Gender			0.642			<0.001
Male	3088	62.6		23935	86.7	
Female	6643	62.2		23613	87.8	
Wealth			<0.001			<0.001
Poor	3044	53		22938	84.4	
Middle	1972	62		9706	89.6	
Rich	4715	70.6		14904	90.5	
Place of living			<0.001			<0.001
Rural	4727	56.5		19336	85.2	
Urban	5004	69		28212	88.7	
Educational Attainment			<0.001			<0.001
No education	1850	52.6		2021	75.5	
Prim education	3641	56.8		21131	84.8	
Sec education	3859	74		17394	90.2	
Higher education	381	82.1		6972	92.1	
Marital Status			<0.001			<0.001
Never married	3595	63.9		14394	88.3	
Married	4092	59.5		6245	90.3	
Living together	1225	67.2		19117	85.3	
Widowed	168	66.4		405	89.6	
Divorced	15	75		6958	87.6	
Not living together	636	63.5		429	93.3	
HIV status			0.364			0.539
Positive	138	59.5		339	88.3	
Negative	6204	62.4		44814	87.3	

Table 4.2 Chi-Square statistics: Distribution of the agreement to allow PLWA to continue to teach by demographic characteristics.

Variables	Haiti N=15611			DR N= 54361		
	N	**%**	**p-value**	**N**	**%**	**p-value**
Age			<0.001			<0.001
15-29	3560	39.3		13240	48.9	
30-44	1537	33		8463	44.8	
45-69	518	27.3		2800	33.3	
Gender			<0.001			<0.001
Male	2015	40.8		10244	37.2	
Female	3600	33.7		14259	53.1	
Wealth			<0.001			<0.001
Poor	1361	23.7		9490	35	
Middle	989	31		5267	48.7	
Rich	3265	48.9		9746	59.3	
Place of living			<0.001			<0.001
Rural	2321	27.8		8210	36.3	
Urban	3294	45.4		16294	51.4	
Educational attainment			<0.001			<0.001
No education	727	20.6		631	23.3	
Prim education	1762	27.5		8090	32.5	
Sec education	2773	53.2		10469	54.4	
Higher education	353	75.9		5313	70.4	
Marital Status			<0.001			<0.001
Never married	2346	41.7		8105	49.8	
Married	2147	31.2		3606	52.3	
Living together	704	38.6		8748	39.1	
Widowed	78	30.8		191	42.3	
Divorced	11	55		3566	45	
Not living together	329	32.9		287	62.4	
HIV status*			0.007			0.381
Positive	59	25.4		212	47.3	
Negative	3375	33.9		23181	45.3	

Table 4.3 Chi-Square statistics: Distribution of the agreement to buy vegetables from vendors with HIV/AIDS by demographic characteristics.

Variables	Haiti N=15625			DR N=54492		
	N	**%**	**p-value**	**N**	**%**	**p-value**
Age			<0.001			<0.001
15-29	3057	33.7		10789	39.8	
30-44	1365	29.3		7393	39	
45-69	476	25		2430	28.8	
Gender			<0.001			<0.001
Male	1795	36.4		8379	30.4	
Female	3103	29		12233	45.5	
Wealth			<0.001			<0.001
Poor	1180	20.5		7989	29.4	
Middle	893	28		4464	41.2	
Rich	2825	42.2		8159	49.6	
Place of living			<0.001			<0.001
Rural	2002	23.9		7065	31.1	
Urban	2896	39.9		13547	42.6	
Educational Attainment			<0.001			<0.001
No education	646	18.3		518	19.1	
Prim education	1543	24		6976	28	
Sec education	2394	45.9		8685	45	
Higher education	315	67.7		4433	58.6	
Marital Status			<0.001			<0.001
Never married	2002	35.6		6546	40.2	
Married	1952	28.3		3220	46.5	
Living together	580	31.8		7451	33.2	
Widowed	71	28.1		165	36.5	
Divorced	9	45		2981	37.5	
Not living together	284	28.3		249	54.4	
HIV status			0.071			0.058
Positive	55	23.7		191	42.3	
Negative	2902	29.2		19465	37.9	

Table 4.4 Chi-Square statistics: Distribution of the disagreement to allow people to keep HIV infection secret . (Disagreement is a positive attitude)

Variables	Haiti	N=15625		DR	N=54492	
	N	**%**	**p-value**	**N**	**%**	**p-value**
Age			<0.001			<0.001
15-29	6485	71.6		16318	60.2	
30-44	3576	76.8		14120	74.6	
45-69	1488	78.3		6676	79.2	
Gender			<0.001			<0.001
Male	3823	77.5		19329	70.1	
Female	7726	72.3		17785	66.1	
Wealth			<0.001			<0.001
Poor	4245	73.9		18883	69.3	
Middle	2439	76.5		7398	68.3	
Rich	4865	72.8		10883	66.1	
Place of living			<0.001			<0.001
Rural	6299	75.3		16095	71.0	
Urban	5250	72.4		21019	66.1	
Educational Attainment			0.212			<0.001
No education	2624	74.5		1942	71.5	
Prim education	4779	74.5		17409	69.9	
Sec education	3806	73		12626	65.5	
Higher education	340	73.1		5137	67.9	
Marital Status			<0.001			<0.001
Never married	3959	70.3		9389	57.6	
Married	5320	77.2		5245	75.8	
Living together	1291	70.8		16243	72.5	
Widowed	186	73.5		330	73.3	
Divorced	17	85		5580	70.3	
Not living together	776	77.4		327	71.2	
HIV status*			0.221			0.176
Positive	176	75.9		293	65.1	
Negative	7185	72.2		34950	68.1	

Table 4.5 Chi-Square statistics: Distribution of the disagreement to the shame feelings regarding PLWA. (Disagreement is a positive attitude)

Variables	Haiti N=15625			DR N=54492		
	N	**%**	**p-value**	**N**	**%**	**p-value**
Age			0.001			<0.001
15-29	5783	63.9		20427	75.4	
30-44	2881	61.9		14418	76.3	
45-69	1132	59.5		5822	69.1	
Gender			0.002			<0.001
Male	3184	64.5		18647	67.7	
Female	6612	62		22020	82	
Wealth			<0.001			<0.001
Poor	3259	56.7		18494	68.1	
Middle	1806	56.7		8438	78	
Rich	4731	70.9		13737	83.5	
Place of living			<0.001			<0.001
Rural	4793	57.3		15641	69	
Urban	5003	69		25026	78.8	
Educational Attainment			<0.001			<0.001
No education	2034	57.8		1662	61.3	
Prim education	3539	55.2		16548	66.5	
Sec education	3785	72.6		15679	81.4	
Higher education	438	94.2		6778	89.7	
Marital Status			<0.001			<0.001
Never married	3648	64.9		12048	74	
Married	4162	60.5		5600	81.1	
Living together	1197	65.6		16299	72.8	
Widowed	155	61.3		343	75.9	
Divorced	11	55		5982	75.5	
Not living together	623	62.1		395	85.9	
HIV status*			0.624			0.001
Positive	140	60.3		369	81.6	
Negative	6156	61.9		38423	75	

Table 4.6 Chi-Square statistics: Distribution of the disagreement to blame PLWA. (Disagreement is a positive attitude)

Variables	Haiti	N=15625		DR	N=54492	
	N	**%**	**p-value**	**N**	**%**	**p-value**
Age			0.004			<0.001
15-29	5853	64.6		20442	75.4	
30-44	2965	63.7		14180	74.9	
45-69	1151	60.5		5762	68.3	
Gender			0.817			<0.001
Male	3143	63.7		18590	67.4	
Female	6826	63.9		21794	81	
Wealth			<0.001			<0.001
Poor	3273	56.9		18581	68.4	
Middle	1850	58		8280	76.4	
Rich	4846	72.5		13523	82.1	
Place of living			<0.001			<0.001
Rural	4843	57.9		15622	68.9	
Urban	5126	70.6		24762	77.9	
Educational Attainment			<0.001			<0.001
No education	2064	58.6		1708	62.9	
Prim education	3653	56.9		16829	67.6	
Sec education	3816	73.1		15247	79	
Higher education	436	94.8		6600	87.3	
Marital Status			<0.001			<0.001
Never married	3687	65.5		12061	74	
Married	4231	61.4		5484	79.3	
Living together	1238	67.8		16117	71.9	
Widowed	163	64.4		323	71.5	
Divorced	8	40		6011	75.7	
Not living together	642	63.9		388	84.3	
HIV status			0.702			0.001
Positive	151	65.1		368	81.4	
Negative	6357	63.9		38096	74.2	

Table 5.1 Chi-Square statistics: Frequency of the correct answers related to the belief that AIDS can be transmitted by mosquito bites.

Variables	Haiti N=15625			DR N=54497		
	N	**%**	**p-value**	**N**	**%**	**p-value**
Age			<0.001			<0.001
15-29	4891	54		15099	55.7	
30-44	2396	51.4		10282	54.3	
45-69	884	46.5		4051	48.0	
Gender			<0.001			<0.001
Male	2791	56.5		13490	48.9	
Female	5380	50.3		15941	59.3	
Wealth			<0.001			<0.001
Poor	2412	41.9		12483	45.9	
Middle	1497	47		6246	57.7	
Rich	4262	63.7		10702	65	
Place of living			<0.001			<0.001
Rural	3803	45.4		10823	47.7	
Urban	4368	60.2		18608	58.5	
Educational Attainment			<0.001			<0.001
No education	3186	56.6		960	35.3	
Prim education	2948	45.9		11042	44.3	
Sec education	3424	65.6		11838	61.4	
Higher education	419	90.1		5591	73.9	
Marital Status			<0.001			<0.001
Never married	3687	65.5		9298	57	
Married	3362	48.8		4357	63	
Living together	982	53.8		11164	49.8	
Widowed	128	50.6		235	52	
Divorced	12	60		4071	51.3	
Not living together	501	49.9		306	66.5	
HIV status	**10187**	**64.8**	0.950	**51796**	**93.9**	0.577
Positive	117	50.4		251	55.5	
Negative	5041	50.6		27838	54.2	

Table 5.2 Chi-Square statistics: Frequency of the correct answers related to the belief that one's could get AIDS by sharing food with a PLWHA

Variables	Haiti N=15621			DR N=54450		
	N	**%**	**p-value**	**N**	**%**	**p-value**
Age			<0.001			<0.001
15-29	6929	76.5		20086	74.1	
30-44	3410	73.2		14153	74.8	
45-69	1256	66		5878	69.7	
Gender			0.012			<0.001
Male	3726	75.5		19158	69.5	
Female	7869	73.6		20959	78	
Wealth			<0.001			<0.001
Poor	3561	61.9		18519	68.2	
Middle	2364	74.2		8381	77.4	
Rich	5670	84.8		13217	80.3	
Place of living			<0.001			<0.001
Rural	5631	67.3		15741	69.4	
Urban	5964	82.2		24376	76.7	
Educational Attainment			<0.001			<0.001
No education	2040	57.9		1589	58.6	
Prim education	4453	69.4		16754	67.3	
Sec education	4663	89.4		15253	79.1	
Higher education	439	94.4		6521	86.2	
Marital Status			<0.001			<0.001
Never married	4300	76.4		12044	73.9	
Married	4898	71		5537	80.1	
Living together	1451	79.5		16084	71.8	
Widowed	175	69.2		306	67.7	
Divorced	18	90		5764	72.7	
Not living together	753	75		382	83	
HIV status	**10185**	**64.8**	0.953	**51753**	**93.8**	0.862
Positive	171	73.7		332	73.5	
Negative	7353	73.9		37867	73.8	

Table 5.3 Chi-Square statistics: Frequency of the answers related to the belief that a healthy person can have AIDS (a positive answer is a correct belief)

Variables	Haiti N=15609			DR N=54322		
	N	**%**	**p-value**	**N**	**%**	**p-value**
Age			0.112			<0.001
15-29	7751	85.6		24769	91.6	
30-44	4027	86.5		17573	93	
45-69	1609	84.7		7732	92	
Gender			<0.001			<0.001
Male	4421	89.7		25222	91.7	
Female	8966	84		24852	92.6	
Wealth			<0.001			<0.001
Poor	4460	77.7		24101	88.9	
Middle	2738	85.9		10195	94.4	
Rich	6189	92.6		15778	96.2	
Place of living			<0.001			<0.001
Rural	6768	81		20264	89.6	
Urban	6619	91.3		29810	94	
Educational Attainment			<0.001			<0.001
No education	2783	79.2		2174	80.2	
Prim education	5263	82.1		22162	89.2	
Sec education	4878	93.5		18329	95.3	
Higher education	463	99.6		7409	98.2	
Marital Status			0.118			<0.001
Never married	48005	85.3		14789	91	
Married	5878	85.4.		6624	96	
Living together	1595	87.5		20494	91.7	
Widowed	220	87		408	91.1	
Divorced	18	89.5		7318	92.3	
Not living together	877	87.4		441	96.7	
HIV status	**10179**	**64.8**	0.486	**51635**	**93.6**	0.091
Positive	199	85.8		426	94.2	
Negative	8364	84.1		47138	92.1	

Table 5.4 Chi-Square statistics: Frequency of the correct answers related to the belief that AIDS can be transmitted by supernatural causes.

Variables	Haiti N=15615			DR N=54389		
	N	**%**	**p-value**	**N**	**%**	**p-value**
Age			<0.001			0.856
15-29	6785	74.9		24363	90	
30-44	3309	71.1		17030	90.1	
45-69	1268	66.7		7563	89.9	
Gender			<0.001			<0.001
Male	3382	77.6		25067	91.1	
Female	7530	70.5		23889	88.9	
Wealth			<0.001			<0.001
Poor	3917	68.2		23498	86.6	
Middle	2306	72.4		9947	92	
Rich	5139	76.9		15511	94.3	
Place of living			<0.001			<0.001
Rural	5905	70.6		19885	87.8	
Urban	5457	75.2		29071	91.6	
Educational Attainment			<0.001			<0.001
No education	2207	62.7		2104	77.7	
Prim education	4439	69.2		21623	87	
Sec education	4298	82.4		17960	93.3	
Higher education	418	89.9		7269	96.1	
Marital Status			<0.001			<0.001
Never married	4263	75.7		14636	90	
Married	4877	70.8		6448	93.4	
Living together	1335	73.2		19942	89.1	
Widowed	164	64.8		383	84.7	
Divorced	16	80		7112	89.7	
Not living together	707	70.5		435	94.6	
HIV status	**10178**	**64.8**	0.025	**51693**	**93.7**	0.355
Positive	148	63.8		399	88.7	
Negative	7022	70.6		46109	90	

Table 6.1 Univariate Association with selected independent variables and the attitudes towards people living with Haiti in Haiti and Dominican Republic.

	HAITI			DOMINICAN REPUBLIC		
Variables	**Odds ratio**	**Confidence Interval**	**p-value**	**Odds ratio**	**Confidence Interval**	**p-value**
Age						
15-29	1.476	(1.308-1.665)	<0.001	1.449	(1.374-1.529)	<0.001
30-44	1.234	(1.084-1.405)	=0.002	1.585	(1.499-1.676)	<0.001
45-69(ref)						
Gender						
Male	1.537	(1.426-1.657)	<0.001	0.480	(0.463-0.498)	<0.001
(Female: ref)						
Wealth						
Poor	0.282	(0.258-0.308)	<0.001	0.368	(0.353-0.383)	<0.001
Middle	0.468	(0.424-0.516)	<0.001	0.687	(0.654-0.722)	<0.001
Rich: ref						
Place of living	0.435	(0.405-0.469)	<0.001	0.564	(0.544-0.585)	<0.001
Urban :ref						
Education						
No education	0.07	(0.056-0.087)	<0.001	0.123	(0.110-138)	<0.001
Primary	0.094	(0.077-0.116)	<0.001	0.210	(0.199-0.222)	<0.001
Secondary	0.309	(0.252-0.379)	<0.001	0.504	(0.477-0.532)	<0.001
Higher (ref).						

Table 6.1(Continued) Univariate Association with selected independent variables and the attitudes towards people living with Haiti in Haiti and Dominican Republic.

	HAITI			DOMINICAN REPUBLIC		
Variables	**Odds ratio**	**Confidence Interval**	**p-value**	**Odds ratio**	**Confidence Interval**	**p-value**
Marital status						
never married	1.404	(1.295-1.521)	<0.001	0.636	(0.601-0.673)	<0.001
living together	1.041	(0.890-1.217)	0.616	1.354	(1.120-1.637)	0.002
widowed	1.264	(1.124-1.422)	<0.001	0.511	(0.484-0.540)	<0.001
divorced	0.941	(0.694-1.275)	0.694	0.611	(0.501-0.746)	<0.001
Not living together	1.452	(0.557-3.784)	0.446	0.646	(0.605-0.690)	<0.001
married(ref.)						
HIV status						
positive	0.888	(0.646-1.221)	0.466	1.243	(1.030-1.501)	0.024
negative(ref)						
Beliefs						
wrong	0.262	(0.243-0.283)	<0.001	0.340	(0.328-0.353)	<0.001
correct(ref)						

Table 6.2. Univariate Association with selected independent variables and the beliefs of the participants regarding HIV in Haiti and Dominican Republic.

	HAITI			DOMINICAN REPUBLIC		
VARIABLES	Odds ratio	Confidence Interval	P-value	Odds ratio	Confidence Interval	P-value
Age						
15-29	1.509	(1.354-1.682)	<0.001	1.258	(1.196-1.323)	<0.001
30-44	1.411	(1.256-1.585)	<0.001	1.315	(1.247-1.386)	<0.001
45-69(ref)						
Gender (female:ref)	1.236	(1.153-1.326)	<0.001	0.659	(0.637-0.682)	<0.001
Wealth						
Poor	0.315	(0.292-0.341)	<0.001	0.438	(0.421-0.456)	<0.001
Middle	0.490	(0.448-0.535)	<0.001	0.740	(0.704-0.776)	<0.001
Rich (ref)						
Place of living	0.470	(0.439-0.502)	<0.001	0.627	(0.606-0.650)	<0.001
Urban(ref)						
Education						
No education	0.072	(0.057-0.092)	<0.001	0.157	(0.142-0.174)	<0.001
Primary	0.100	(0.079-0.125)	<0.001	0.259	(0.246-0.274)	<0.001
Secondary	0.288	(0.229-0.363)	<0.001	0.552	(0.523-0.583)	<0.001
Higher (ref).						

Table 6.2 (Continued). Univariate Association with selected independent variables and the beliefs of the participants regarding HIV in Haiti and the Dominican Republic.

	HAITI			DOMINICAN REPUBLIC		
Variables	**Odds ratio**	**Confidence Interval**	**p-value**	**Odds ratio**	**Confidence Interval**	**p-value**
Marital status						
never married	1.272	(1.182-1.368)	<0.001	0.674	(0.637-0.713)	<0.001
living together	1.023	(0.889-1.177)	0.749	1.210	(1.00-1.46)	0.05
widowed	1.290	(1.159-1.435)	<0.001	0.555	(0.526-0.586)	<0.001
divorced	0.862	(0.656-1.133)	0.286	0.546	(0.449-0.665)	<0.001
Not living together	1.642	(0.679-3.968)	0.271	0.609	(0.570-0.650)	<0.001
married(ref.)						
HIV status						
positive	0.968	(0.736-1.274)	0.819	1.093	(0.907-1.317)	0.351
negative: ref						

Table 6.3. Multivariate Analysis of the independent variables with the attitude score.

	HAITI			DOMINICAN REPUBLIC		
Variables	**Odds ratio**	**Confidence Interval**	**p-value**	**Odds ratio**	**Confidence Interval**	**p-value**
Age						
15-29	0.926	(0.795-1.079)	0.327	1.029	(0.963-1.099)	0.402
30-44	0.949	(0.823-1.093)	0.467	1.225	(1.153-1.302)	<0.001
45-69 (ref)						
Gender	**1.597**	(1.468-1.737)	<0.001	0.533	(0.512-0.554)	<0.001
Female(ref)						
Wealth						
Poor	0.510	(0.448-0.581)	<0.001	0.666	(0.634-0.700)	<0.001
Middle	0.685	(0.611-0.768)	<0.001	0.895	(0.849-0.944)	<0.001
Rich: ref						
Place of living	0.945	(0.851-1.051)	0.299	0.816	(0.783-0.851)	<0.001
Urban: ref						
Education						
No education	0.115	(0.091-0.146)	<0.001	0.192	(0.170-0.216)	<0.001
Primary	0.136	(0.109-0.168)	<0.001	0.301	(0.283-0.320)	<0.001
Secondary	0.367	(0.298-0.451)	<0.001	0.612	(0.578-0.647)	<0.001
Higher (ref).						

Table 6.3 (Continued). Multivariate Analysis of the independent variables with the attitudes scores.

	HAITI			DOMINICAN REPUBLIC		
Variables	**Odds ratio**	**Confidence Interval**	**p-value**	**Odds ratio**	**Confidence Interval**	**p-value**
Marital status						
never married	0.922	(0.827-1.027)	0.141	0.842	(0.784-0.905)	<0.001
living together	0.980	(0.830-1.157)	0.811	0.984	(0.805-1.203)	0.874
widowed	0.933	(0.817-1.066)	0.309	0.785	(0.738-0.835)	<0.001
divorced	1.104	(0.802-1.520)	0.544	0.861	(0.697-1.065)	0.168
Not living together	0.685	(0.24-197)	0.482	0.895	(0.833-0.963)	0.003
married(ref.)						

Table 6.4. Multivariate Analysis of the independent variables with the belief scores.

	HAITI			DOMINICAN REPUBLIC		
Variables	**Odds ratio**	**Confidence Interval**	**p-value**	**Odds ratio**	**Confidence Interval**	**p-value**
Age						
15-29	0.942	(0.822-1.079)	0.389	0.955	(0.898-1.016)	0.145
30-44	1.095	(0.966-1.241)	0.155	1.083	(1.024-1.146)	0.006
45-69 (ref)						
Gender (Female: ref)	1.259	(1.165-1.360)	<0.001	0.733	(0.706-0.761)	<0.001
Wealth						
Poor	0.540	(0.480-0.606)	<0.001	0.745	(0.710-0.782)	<0.001
Middle	0.693	(0.625-0.769)	<0.001	0.945	(0.898-0.995)	0.032
Rich: ref						
Place of living Urban: ref	0.982	(0.892-1.081)	0.713	0.854	(0.821-0.889)	<0.001
Education						
No education	0.110	(0.086-0.141)	<0.001	0.217	(0.195-0.242)	<0.001
Primary	0.141	(0.112-0.179)	<0.001	0.337	(0.318-0.358)	<0.001
Secondary	0.343	(0.272-0.433)	<0.001	0.640	(0.605-0.678)	<0.001
Higher (ref).						

Table 6.4 (Continued). Multivariate Analysis of the independent variables with the beliefs score.

	HAITI			DOMINICAN REPUBLIC		
Variables	**Odds ratio**	**Confidence Interval**	**p-value**	**Odds ratio**	**Confidence Interval**	**p-value**
Marital status						
never married	0.899	(0.892-0.993)	0.035	0.843	(0.787-0.903)	<0.001
living together	0.951	(0.821-1.103)	0.510	0.931	(0.764-1.135)	0.481
widowed	0.975	(0.865-1.100)	0.681	0.821	(0.773-0.872)	<0.001
divorced	0.951	(0.714-1.266)	0.730	0.766	(0.624-0.940)	0.168
Not living together	0.906	(0.345-2.378)	0.841	0.820	(0.764-0.880)	<0.001
married(ref.)						

Table 6.5. Stepwise Forward Logistic Regression of the selected independent variables with the attitude score.

	HAITI			DOMINICAN REPUBLIC		
Variables	**Odds ratio**	**Confidence Interval**	**p-value**	**Odds ratio**	**Confidence Interval**	**p-value**
Age						
15-29				1.029	(0.963-1.099)	0.402
30-44				1.225	(1.153-1.302)	<0.001
45-69 (ref)						
Gender	1.597	(1.473-1.731)	<0.001	0.533	(0.512-0.554)	<0.001
(Female: ref)						
Wealth						
Poor	0.486	(0.439-0.539)	<0.001	0.666	(0.634-0.700)	<0.001
Middle	0.667	(0.601-0.740)	<0.001	0.895	(0.849-0.944)	<0.001
Rich: ref						
Place of living				0.816	(0.783-0.851)	<0.001
Urban: ref						
Education						
No education	0.122	(0.097-0.154)	<0.001	0.192	(0.170-0.216)	<0.001
Primary	0.137	(0.111-0.170)	<0.001	0.301	(0.283-0.320)	<0.001
Secondary	0.363	(0.296-0.446)	<0.001	0.612	(0.578-0.647)	<0.001
Higher (ref).						

Table 6.5 (continued). Stepwise Forward Logistic Regression of the selected independent variables with the attitude score

	HAITI			DOMINICAN REPUBLIC		
Variables	**Odds ratio**	**Confidence Interval**	**p-value**	**Odds ratio**	**Confidence Interval**	**p-value**
Marital status						
never married				0.842	(0.784-0.905)	<0.001
living together				0.984	(0.805-1.203)	0.874
widowed				0.785	(0.738-0.835)	<0.001
divorced				0.861	(0.697-1.065)	0.168
Not living together				0.895	(0.833-0.963)	0.003
married(ref.)						

Table 6.6 Stepwise Forward Logistic Regression of the selected independent variables with the belief score.

	HAITI			DOMINICAN REPUBLIC		
Variables	**Odds ratio**	**Confidence Interval**	**p-value**	**Odds ratio**	**Confidence Interval**	**p-value**
Age						
15-29	0.892	(0.788-1.009)	0.069	0.955	(0.898-1.016)	0.145
30-44	1.091	(0.963-1.236)	0.172	**1.083**	**(1.024-1.146)**	**0.006**
45-69 (ref)						
Gender	**1.240**	**(1.150-1.337)**	**<0.001**	**0.733**	**(0.706-0.761)**	**<0.001**
(Female: ref)						
Wealth						
Poor	**0.533**	**(0.488-0.584)**	**<0.001**	**0.745**	**(0.710-0.782)**	**<0.001**
Middle	**0.690**	**(0.628-0.758)**	**<0.001**	**0.945**	**(0.898-0.995)**	**0.032**
Rich: ref						
Place of living				**0.854**	**(0.821-0.889)**	**<0.001**
Urban: ref						
Education						
No education	**0.111**	**(0.086-0.143)**	**<0.001**	**0.217**	**(0.195-0.242)**	**<0.001**
Primary	**0.141**	**(0.112-0.179)**	**<0.001**	**0.337**	**(0.318-0.358)**	**<0.001**
Secondary	**0.342**	**(0.271-0.431)**	**<0.001**	**0.640**	**(0.605-0.678)**	**<0.001**
Higher (ref).						

Table 6.6 (Continued). Stepwise Forward Logistic Regression of the selected independent variables with the belief score.

	HAITI			DOMINICAN REPUBLIC		
Variables	**Odds ratio**	**Confidence Interval**	**p-value**	**Odds ratio**	**Confidence Interval**	**p-value**
Marital status						
never married				0.843	(0.787-0.903)	<0.001
living together				0.931	(0.764-1.135)	0.481
widowed				0.821	(0.773-0.872)	<0.001
divorced				0.766	(0.624-0.940)	0.168
Not living together				0.820	(0.764-0.880)	<0.001
married(ref.)						

7.1 Overall association between the selected independent variables and the attitudes towards PLWA adjusting for country.

VARIABLE	ODDS RATIO	CI	P-Value
Country			
Haiti	0.662	(0.630-0.695)	p<0.001
DR(referent)			
Age			
15-29	0.991	(0.933-1.053)	p=0.773
30-44	1.175	(1.111-1.242)	p<0.001
45-69(referent)			
Gender			
Male	0.646	(0.624-0.669)	p<0.001
Female(referent)			
Place of living			
Rural	0.826	(0.795-0.858)	p<0.001
Urban(referent)			
Wealth			
Poor	0.647	(0.618-0.677)	p<0.001
Middle	0.854	(0.815-0.895)	p<0.001
Rich(referent)			
Education			
No education	0.176	(0.161-0.194)	p<0.001
Primary	0.271	(0.256-0.287)	p<0.001
Secondary	0.592	(0.561-0.624)	p<0.001
Higher(referent)			

7.1 Overall association between the selected independent variables and the attitudes towards PLWA adjusting for country (continued).

VARIABLE	ODDS RATIO	CI	P-Value
Marital status			
Never married	0.907	(0.856-0.951)	p=0.001
Living together	0.926	(0.818-1.049)	p=0.226
Widowed	0.863	(0.819-0.910)	p<0.001
Divorced	0.957	(0.803-1.140)	p=0.620
Not living together	0.985	(0.922-1.053)	p=0.656
Married (referent)			

7.2. Overall association between the selected independent variables and the HIV-related beliefs adjusting for country.

VARIABLE	ODDS RATIO	CI	P-Value
Country			
Haiti	0.871	(0.832-0.912)	p<0.001
DR(referent)			
Age			
15-29	0.938	(0.887-0.992)	p=0.025
30-44	1.082	(1.028-1.139)	p=0.003
45-69(referent)			
Gender			
Male	0.816	(0.789-0.844)	p<0.001
Female(referent)			
Place of living			
Rural	0.826	(0.826-0.888)	p<0.001
Urban(referent)			
Wealth			
Poor	0.707	(0.676-0.738)	p<0.001
Middle	0.881	(0.842-0.922)	p<0.001
Rich(referent)			

7.2 Overall association between the selected independent variables and the HIV-related beliefs adjusting for country (continued).

VARIABLE	ODDS RATIO	CI	P-Value
Marital status			
Never married	0.892	(0.844-0.942)	p<0.001
Living together	0.911	(0.811-1.024)	p=0.118
Widowed	0.891	(0.848-0.937)	p<0.001
Divorced	0.847	(0.718-1.000)	p=0.05
Not living together	0.884	(0.830-0.942)	p<0.001
Married(referent)			