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Religion and HIV/AIDS stigma: Implications for health professionals in Puerto Rico

N. Varas-Díaz¹, T.B. Neilands², S. Malavé Rivera³, and E. Betancourt⁴

¹Center for the Study of Social Differences and Health, Graduate School of Social Work Beatriz Lassalle, University of Puerto Rico

²Center for AIDS Prevention Studies, University of California at San Francisco

³Department of Psychology, University of Puerto Rico

⁴Graduate School of Social Work Beatriz Lassalle, University of Puerto Rico

Abstract

HIV/AIDS stigma continues to be a barrier for prevention efforts. Its detrimental effects have been documented among people living with HIV/AIDS and encompass loss of social support and depression. When it is manifested by health professionals, it can lead to suboptimal services. Although strides have been made to document the effects of HIV/AIDS stigma, much needs to be done in order to understand the structural factors that can foster it. Such is the case of religion's role on HIV/AIDS stigma in Puerto Rico. The Caribbean Island has a Judeo-Christian based culture due to years of Spanish colonisation. This religious influence continued under Protestantism as part of the Island's integration as a non-incorporated territory of the USA. The main objective of this study was to explore the role of religion in HIV/AIDS stigma manifested by Puerto Rican health professionals in practice and in training. Through a mixed method approach, 501 health professionals completed qualitative interviews (n=80) and self-administered questionnaires (n=421). Results show that religion plays some role in conceptualisations of health and illness among participants in the study. Furthermore, the importance placed on religion and participation in such activities was related to higher levels of HIV/AIDS stigma.

Keywords

HIV/AIDS; stigma; health professionals; Puerto Rico; religion

Introduction

The global impact of Human Immunodeficiency Virus (HIV) and the Acquired Immunodeficiency Syndrome (AIDS) is undeniable. It is estimated that 33.2 million people have been infected with HIV throughout the world (UNAIDS 2007). Approximately 2.5 million became infected in 2007, and 2.1 million died of conditions associated to the

disease. The Caribbean has been severely affected by these numbers as the second region of highest prevalence in the world.

Puerto Rico is one of the Caribbean's Greater Antilles. It has an estimated population of almost 4 million inhabitants and a geographical area 114 miles long and 42 miles wide. As one of the most densely populated countries in the world, the HIV/AIDS cases are of great concern. The Puerto Rican Department of Health (2008) has 30 771 reported cases of AIDS; of those 98.7% of cases are adults (30 771) and 1.3% are children (408). The epidemic has affected men more severely than women, as they entail 76.4% of AIDS cases (23 182). The most common means of infection are needle sharing during drug use (15 038 - 50%), unprotected heterosexual relations (7548 - 25%) and unprotected sexual relations among men who have sex with men (4978 - 16%). These estimates are influenced by severe underreporting due to the high levels of stigmatisation that are present on the Island (Varas-Díaz et al. 2005) and the societal stigmatisation of drug use and homosexual activity (Toro-Alfonso 2007, Albizu-García et al. 2008).

The presence and manifestations of HIV/AIDS stigma have been thoroughly documented on the Island (Torres-Ruiz et al. 2007, Varas-Díaz and Marzán 2007, Rosa and Varas-Díaz 2008). Nonetheless, it is critical that future research aims to better understand the social factors that foster or contribute to HIV/AIDS stigma, as a means to identify targets for future interventions or policies.

The consequences of HIV/AIDS stigma

HIV/AIDS stigma is based on the ideas that those who live with the disease are both 'different' due to their HIV infection and 'less than' those who are uninfected, which combine to justify their social exclusion (Pfizer 2004, Emlet 2006). The existing literature on stigma has demonstrated that this has many negative consequences for people with HIV/AIDS (PWHAs), including the deterioration of interpersonal relations, manifestation of negative emotions by PWHAs, and the implementation of punitive public policies by governments that target those groups most vulnerable to HIV infection (Deacon et al. 2005, Kittikorn et al. 2006). Other research has found that HIV/AIDS stigma has psychosocial implications such as depression and anxiety (Kuang et al. 2005). The first author's prior work in Puerto Rico demonstrates that these conditions are worsened when HIV/AIDS stigma negatively impacts social relations with family, friends, sexual partners and health professionals (Varas-Díaz et al. 2005). When HIV/AIDS stigma is manifested by health professionals, it can hinder the quality of services or even eliminate them completely, as in the case of patients who feel so stigmatised by health personnel that they avoid clinical encounters entirely (Malavé and Varas-Díaz 2006). Although the high degree of HIV/AIDS stigma among health professionals has been more extensively documented in recent years (Malavé and Varas-Díaz 2006, Torres-Ruiz et al. 2007, Varas-Díaz and Marzán 2007), this agenda needs to explore further the social factors that foster these negative attitudes in order to develop better strategies to address their manifestation.

Social structure and AIDS stigma

The research literature on HIV/AIDS stigma has been widely influenced by the conceptual framework of Erving Goffman (1969). His work on the subject of stigma in general has enabled researchers to have a clearer understanding of its roots as well as its consequences for both the target and the perpetrator. However, as a result of Goffman's emphasis on social interactions among individuals or small groups, this framework has had less applicability to the analysis of the structural issues that promote stigma (Parker and Aggleton 2002).

Link and Phelan (2006) have addressed this limitation in their conceptualisations of stigma. For these authors, stigma is not only related to personal or social attitudes that serve to devalue a person or group, rather, these ideas are also deeply embedded in social structures that shape individual beliefs and behaviours. They are influenced by power dynamics that serve to oppress the stigmatised and maintain social control over them through the use of restrictive, stereotyped, or punitive beliefs. A similar perspective has been described by Parker and Aggleton (2002) in the case of HIV/AIDS stigma. For them, the stigmatisation of PWHA is not solely based on fears of contagion, but on the social use of power as a means to control particular groups and maintain hierarchies through social institutions and their representatives, such as public policy makers and medical personnel. In this paper, we draw on this literature to examine whether and how the religious beliefs and values of such institutional representatives contribute to or potentially resist HIV/AIDS stigma. Because of religion's cultural and social importance, research focusing on its potential role in institutional practices within the medical field is critical to advance descriptive or intervention studies of HIV/AIDS stigma and its health effects.

Religion in Puerto Rico

Puerto Rico has been deeply influenced by religion throughout many centuries. Since its colonisation by Spain in 1492, local indigenous cultures were exterminated by either warfare, slavery and indentureship or disease (Picó 2003). This process, much like everywhere else in the Americas colonised by Spain, was closely linked to religious ideologies motivating the Christianisation of the indigenous populations. With Catholicism as its moral justification, the Spanish empire strongly socialised the native population in their particular perspectives on God, sin, and especially obedience to central religious authority.

In 1898 Puerto Rico came under USA control when Spain lost the Spanish-American War (Fernández 1996, Picó 2003). The consequences of this change for the colonial tradition were significant as the new imperial authority sought to change the local language to English through control of the educational system. Perhaps more significant for religious beliefs was the introduction of Protestant ethics and practices to the Island (Lugo 2006). Although Catholic churches are the staple of every town's main square or plaza, there is an ever-growing number of Protestant churches in small towns and mega churches that hold thousands of participants in larger metropolitan areas. This pattern of rapid evangelisation in the modern era is paralleled in many countries in the Latin American region, underlining the influence of North American Protestant churches and their religious missions in the region (Alvarez et al. 1998).

The role of religion in Puerto Rican life is not limited to its long history of colonialism. Puerto Ricans have been instrumental in promoting the propagation of churches throughout Latin America. For example, current local Protestant churches have become international endeavors with influence in multiple countries in the region (Cruz 1990). The religious or pious life is widely accepted in the Island, and religious churches and organisations have successfully secularised much of their programming through widely-distributed television broadcasts in order to attract larger sectors of the population that might be less amenable to religious content (Tirado 2008). In short, religion has played a crucial historical and cultural role in shaping Puerto Rican identity, and continues to do so well into the 21st century. It is, therefore, an important social dynamic to be considered in studies of the social factors that may undergird HIV/AIDS stigma, or be used to resist such stigmatisation.

The historical importance of religion in Puerto Rico has led researchers to consider its role in the HIV/AIDS epidemic (Díaz, 1997). Research has documented that while some religious leaders are concerned about HIV/AIDS, few religious institutions have implemented actions or strategies to address it (Torres López and Serrano-García 2007). Some research suggests that religious organisations and their leaders may interpret their role as keepers of morality and religious tradition in their communities (Chin et al. 2005), an obligation that can appear to contradict the marginalised or stigmatised groups that are often more vulnerable to HIV infection (such as intravenous drug users or homosexual men). Although some aspects of religious participation have been found to be health fostering in certain contexts (Moreira-Almeida et al. 2006), it may be that religion can also foster HIV/AIDS stigma. For example, some studies have found that religious beliefs are related to the idea that infection is a punishment from God, and that PWHA are to blame because they did not follow established moral or religious codes (Zou et al. 2009). The role of religion in HIV/AIDS stigma needs to be better understood in the Puerto Rican context, as a means of developing stigma reduction approaches for vulnerable populations. Furthermore, if the religious beliefs and values of practitioners and leaders are better understood, religious institutions may become highly effective partners in the dissemination of HIV prevention messages, due to their widespread and profound influence in Puerto Rican society.

Methods

In order to achieve the proposed objective of the study, we developed and implemented an exploratory and sequential mixed method approach using qualitative and quantitative techniques (Creswell et al. 2003). This process was completed in two stages. In the first stage, we carried out qualitative in-depth interviews with practicing health professionals and health professionals in training. In the second stage, we developed a quantitative questionnaire assessing HIV/AIDS stigma. The questionnaire was administered to a sample of health professionals in training.

Participants

The total sample of the study was composed of 501 participants. In the qualitative stage we interviewed 80 participants (40 health professionals and 40 health professionals in training) equally divided among the following disciplines: medicine (n=20), nursing (n=20),

psychology (n=20) and social work (n=20). In the quantitative stage we administered the questionnaire to a sample of 421 health professionals in training from the same four disciplines.

The inclusion criteria for the practicing health professionals were: 1) that they were older than 21 years of age; 2) that they voluntarily participated in the study; 3) that they were active practitioners of their profession at the moment of the interview; and 4) that they worked in health institutions in which PWHA could receive services (e.g. public hospitals, community based organisations, etc.). We developed these inclusion criteria in order to ensure that the professionals could legally consent to participate, that they did so without being coerced, that they could talk about their past and recent work experiences, and that these experiences were in an environment in which PWHA were potentially receiving health services.

Health professionals in training from the fields of medicine and psychology were recruited at a graduate level (MA, PhD or PsyD) since these degrees are required in Puerto Rico to practice each profession. Health professionals in training from social work and nursing were recruited from both graduate and undergraduate levels since both professions can practice with such degrees.

Due to the exploratory nature of our study we recruited participants by availability in order to constitute a convenience sample. Recruitment was carried out at various locations including: government agencies, public housing projects, public hospitals, public schools and public and private universities. The initial steps in the recruitment process were telephone calls to the directors of these institutions to explain the purpose of the study and to request permission to invite employees and health professionals in training to participate in the study. After we obtained permission, the research team purposively recruited potential participants in order to ensure that they did not feel obliged by supervisors or teachers to participate in the study. We explained to each potential participant the purpose of the study and invited them to participate. Those that wanted to take part completed a consent form explaining the nature of the study. Five individuals decided not to participate in our qualitative interviews (6% refusal rate). All participants invited for our quantitative component decided to participate.

The demographic data from participants in each stage can be seen in Table I. The sample was predominantly female, as in most of these health professions (psychology, nursing and social work) women outnumber men. Less than half of the sample (40%) had received HIV-related training, or had provided services to PWHA at some time. Seventy-five percent of participants in Stage 1 knew someone living with HIV/AIDS, while 43% reported the same in Stage 2. The mean age was 32 for the sample in stage 1 and 25 for those in stage 2. The most common income range in Stage 1 was \$20 000–\$30000 (n=47, 59%) and \$10 000–\$30 000 (n=168, 42%) in Stage 2.

Instruments

We used several instruments as part of the study to gather data from participants. These included a screening form, socio-demographic data questionnaire, qualitative in-depth

interview guide, and a scale to measure HIV/AIDS stigma developed in the Puerto Rican context.

Screening form—This screening form served as a guide for recruiters to ensure that all participants met the inclusion criteria previously described. The forms included questions for each of the criteria and contact information (in the case of the qualitative interviews). This form was completed by participants during both the qualitative and quantitative stages.

Socio demographic data questionnaire—This self-administered questionnaire included 30 questions addressing variables such as gender, age, sexual orientation, marital status, area of residence, employment status, professional training and income. It also included three questions on religion: 1) Which religious group do you identify with?; 2) How important is religion for you?; and 3) How often do you participate in religious activities? The last two questions on religion have been used for the quantitative analysis in the present paper. The importance question was asked on a four point Likert scale (1 = Not important; 2 = Somewhat important; 3 = Important; 4 = Very important). The participation question was asked on a four point Likert scale (1 = Never; 2 = Once a year; 3 = Monthly; 4 = Weekly). Our primary interest in this work was to compare participants who ascribed some level of importance to religion in their lives to those who didn't, and to compare individuals who participated in religious activities to any degree with those who did not participate at all. Accordingly, we created dichotomous versions of the importance (0 = not important; 1 = somewhat to very important) and participation (0 = no participation in religious activities; 1 = participated in religious activities once or more per year).

In-depth interview guide (Varas-Díaz 2005)—This semi-structured interview guide served to maintain a minimum level of uniformity in the subjects that were explored during the interviews. This guide was composed of questions addressing seven subject areas: 1) training and work experiences related to HIV/AIDS; 2) definitions of illness; 3) personal perception of the HIV/AIDS epidemic in Puerto Rico; 4) potential contributions of health professionals and health professionals in training in issues related to the lives of PWHAs; 5) perception on society's opinions regarding PWHAs; 6) health professionals' opinions regarding PWHAs; and 7) the bodily dimensions of the HIV/AIDS epidemic. The guide included specific instructions for the interviewer to follow.

The interview guide was evaluated by a panel of six judges that included researchers in the area of HIV/AIDS and PWHAs in order to establish the appropriateness of its content. After incorporating their feedback we carried out a pilot study with eight people (four professionals and four health professionals in training). The results of the pilot study reflected that the participants understood the questions and that they were able to answer them without difficulties.

HIV/AIDS Stigma Scale (Varas-Díaz and Neilands, In press)—This scale was developed by the research team in the Puerto Rican context. The scale is composed of 44 items addressing 11 dimensions related to HIV/AIDS stigma: fear of infection, emotions associated with HIV/AIDS, closeness to death, PWHAs as vectors of infection, lack of productivity of PWHAs, personal characteristics of PWHAs that foster infection, need to

control PWHA, rights of PWHA, body signs of HIV/AIDS, responsibility over infection, and PWHA as obliged to reveal serostatus. Each dimension is described in Table II, and they in turn are subcomponents of a higher-order general stigma factor. The items are measured with a five point Likert-type scale with values ranging from strongly agree to strongly disagree. The scale has been found to be reliable with an Alpha Cronbach of .93 among health professionals and .91 among health professionals in training.

Procedure

In the first stage, we carried out the qualitative in-depth interviews. When the participants were recruited, a date for the interview was scheduled in a place of the participant's preference. The location had to meet the following requirements: 1) a private place; 2) a place without interruptions; and 3) a place in which the interviewee felt comfortable. At the time of the interview the interviewer explained once again the purpose of the study and the nature of participation. After they agreed to participate, they signed the consent form, completed the socio-demographic data questionnaire, and proceeded to participate in the interview. The interviews lasted, on average, 90 minutes. When the interviews were completed, they were transcribed by trained personnel and submitted for qualitative analysis.

After this stage was completed, we administered our quantitative measures to health professionals in training. All measures were reviewed by Spanish speaking experts in order to assess content validity. Furthermore, all measures had been deemed reliable in the Puerto Rican context with Alpha Cronbach scores ranging from .63 to .91. Participants were recruited through academic programmes in several universities in Puerto Rico. Members of the research team visited classrooms and explained the nature of the study to all potential participants. Those who wanted to participate completed the questionnaire in the classroom. All professors were asked to leave in order to avoid participant coercion in the study. They completed the consent form, demographic data questionnaire, and the HIV/AIDS stigma questionnaire.

Analysis

The information, gathered through the in-depth interviews from Stage 1, was subjected to a qualitative analysis. In order to achieve this goal the interviews were transcribed through a supervised process to ensure fidelity (Poland 2002). The research team met on a weekly basis to identify themes or patterns in the data related to our objectives. Once those themes were identified the research team searched for texts that evidenced them. All selected texts were discussed to ensure that they were representative of the themes with which they were associated (Phillips and Ardí 2002). Once the texts were selected, they were coded with the use of qualitative analysis computer software (Nudist Nvivo V.1.). Lastly, all themes were discussed by the research team and descriptions of each were generated.

The quantitative data, gathered through the questionnaire from Stage 2, were analysed with the use of the SAS 9.2 computer programme. Mean overall stigma and the 11 sub-dimensions of stigma were compared across four distinct participant groups: (1) those who viewed religion as unimportant and who did not participate in it; (2) those who viewed religion as unimportant, but who participated in organised religious activities; (3) those who

saw religion as important, but who did not participate; and (4) those who viewed religion as important and who participated in religious activities. One-way analysis of variance (ANOVA) was carried out to compare these four groups' mean levels of global stigma and stigma sub-dimensions. The SAS procedure GLIMMIX was used to fit the ANOVA models. Because ANOVA may yield p -values that are too large or too small in the presence of unequal group sizes when equal variances are assumed across groups (Stevens 1996), we allowed PROC GLIMMIX to estimate group-specific residual variances. Post-hoc comparisons among the four groups' means were conducted for analyses that yielded an overall significant difference among the four groups' means. A simulation-based method with a stepdown function was used to adjust the p -values to prevent inflation of Type 1 error due to multiple comparisons (Westfall and Young 1993).

Results

Our study's design was developed to yield both qualitative and quantitative information. Here we outline both in order to provide the reader with a more complete perspective on the role of religion on HIV/AIDS stigma in Puerto Rico. We begin with our qualitative results, as they serve to illustrate the cultural context in which our quantitative data is based.

Qualitative results

Our qualitative results yielded important information to better understand the interaction between religion, health, HIV/AIDS stigma and the ways in which health professionals conceptualise their work with PWHA. Although our interviews did not specifically probe for religion issues, 20 participants (25% of the qualitative sample) mentioned related subjects as part of the interview process. Furthermore, although some religion-related narratives did not address HIV/AIDS stigma directly, they shed light on the participants' perceptions of how religion influences health. We find that these general comments about religion and health are useful as they appear to inform opinions about HIV-related cases, as we describe below.

The most basic observation that emerged from our qualitative interviews was the fact that participants were aware of the impact of religion on HIV/AIDS stigma. For example, a psychology student mentioned the lasting impact of Catholicism in Puerto Rican culture, and its negative view of HIV/AIDS and the behaviours through which the HIV virus is transmitted. These views have been taught through generations and, as our participant stated, are rooted in religious culture. After stating that she would be afraid of eating in a restaurant where the cook was a person with HIV/AIDS, the following exchange ensued (note: I = interviewer; P = participant):

I: Why do you think opinions (towards PWHA) are like that?

P: I think it is a cultural issue that has been inculcated in us, and even more considering that our culture is very Catholic, or at least some denomination of it. I believe we were taught those things. Homosexuality, lesbianism, and drug use were bad things, and there is an association to the condition. It is cultural, and stems from patterns that have been taught to us (Female Psychologist in Training).

Another participant echoed this perspective:

P: There are always health professionals that have negative attitudes towards a lot of people. I think that is inevitable, because your values and principles come into play. You act according to how you were brought up. The religion you belong to has a lot to do with it (Female Psychologist).

This position on the role of religion on stigma in our setting was not shared by all participants in the study. Other participants expressed a different kind of awareness of the influence of religion on their opinions and actions towards PWHA. For example, religiosity was described as a phenomenon that could influence service delivery in a positive manner. For one participant, Christianity was described as a motivating factor to provide services to PWHA. This kind of religiosity has the potential to facilitate patient-provider interaction as values such as caring for others and helping the sick are frequently used metaphors for appropriate religious behaviour. One nurse explained this during the interview when she mentioned her religious beliefs as a factor that made caring for PWHA a responsibility:

I: Would it be difficult for you to provide services to PWHA?

P: Uhhh... it is my responsibility as a professional and a human being, as a Christian (Female Nurse).

Another participant mentioned the importance of seeking religious support for clients that hold such beliefs systems as a sign of empathy:

P: You have to be empathic with the situation faced by the patient and the family. You have to understand the human aspect, help them. When they are in a difficult situation where death is inevitable, if they are spiritual, seek religious spiritual help (Male Physician).

The inclusion of personal religious beliefs in service delivery to PWHA occasionally created ambivalence for participants, as when personal religious values clashed with professional expectations. During one of the interviews, a social worker addressed the subject of pregnancy termination when an HIV-positive mother became pregnant. Her description of the decision-making process entailed a cognitive integration of her disparate religious beliefs and professional perspective. The subject matter was so uncomfortable in the interview that the participant spoke of herself using the third-person tense. This has been documented as a strategy used by health professionals to manage personal stigmatising attitudes among cultural settings with high social desirability (Cintrón-Bou and Varas-Díaz 2008).

P: As a professional I would not recommend it. It would be a personal decision for the individual. Hilda as a person does not believe in abortion, so it would be very difficult for Hilda as a professional to see that as an option.

I: Would you include it in your list of possibilities?

P: Hilda the professional would. Hilda the person would not. Because who am I to... if it comes to this world like that, it's because God wanted it like that. What if a miracle happens and it is fine at birth? Anything could happen (Female Social Worker).

Interestingly, this social worker sheds light on the difficulties of balancing personal religious beliefs and professional recommendations when providing services to women. This narrative is more closely related to pregnancy termination than to HIV/AIDS stigma. Still, it is important to acknowledge that women with HIV/AIDS share culturally fostered gender roles that promote the idea that women should experience childbirth (Kirshenbaum et al. 2004). In this scenario religious beliefs can complicate the health professional's job when women with HIV seek pregnancy-related services. Furthermore, this example provides insight into the perceived role of religion (in this case God) as an intervening factor in health related issues through miracles, or unexplainable outcomes.

The mention of miracles in our interviews was not necessarily surprising, considering that Judeo-Christian cultures generally assume a world vision in which God intervenes in daily lives (e.g. answering prayers, influencing the environment, informing personal decision making, etc.). Other narratives demonstrated that the human-God relationship was not exclusively related to healing or problem solving. For example, a psychology student mentioned how becoming infected with HIV could serve to evaluate or perhaps strengthen one's relationship with God. This answer is important because it reflects the idea of illness as a situation that fosters a return to traditional religious values or associations. There is an underlying assumption that those who become sick have not lived in accordance with predetermined tenets, and therefore need to evaluate their relationship with God (Turner 2001). This has been documented in HIV related research in other regions of the world (Zou et al. 2009). An example of this kind of narrative is the following comment:

P: [Becoming infected with HIV] is a life experience that shakes you. You have a condition. That can definitely be a positive issue, just as it can be a traumatic experience. It is a hard experience, OK, but if it made you evaluate your relationship with God, your spirituality, the important people in your life, your goals... that could not have happened without the condition. Even though it may bother us, we have to recognise that it is a positive aspect (Female Psychologist in Training).

Another participant described how God could use illness to communicate with individuals:

P: If I stumbled over that rock, let's help others avoid it and not get to where I got. In that sense [illness] is something positive to help other people. One can benefit from it. If unfortunately God gave me this test, well then let's help others. Maybe that is the message that God had for me: to help other people (Female Physician in Training).

Finally, other participants were less enthusiastic about the redemptive potential of HIV/AIDS in the lives of individuals, focusing more on the frustrating lack of responsibility or willingness of those at risk for HIV infection to adopt prevention approaches. When asked about what could be done to reduce HIV/AIDS stigma, a medical student showed frustration over the lack of effectiveness of HIV prevention in Puerto Rico. As part of his explanation, the student used religious terminology, paraphrasing the book of Matthew to explain why the epidemic could not be stopped. With the phrase 'Let he who has ears listen', the participant suggested that people who become HIV infected despite prevention services are to blame for their careless behaviour:

I: What do you think could be done to change those negative opinions?

P: I believe that nothing more can be done, than what has been already done. I think it is a matter of time for those people to become aware of what is happening, and for them to change. I believe that the alternatives have been exploited to the maximum to take the information to the community regarding infection. 'Let he who has ears listen'. I believe it is a matter of time before people listen. I don't believe anything more can be done in terms of primary prevention and informing people of how one becomes infected (Male Physician in Training).

The use of the biblical phrase here is significant as it provides a direct reference to the importance of religious notions that subtly inform health professionals' evaluations of patients.

The qualitative results from our interviews yielded important information to better understand the role of religion in everyday life, and in HIV/AIDS stigma in particular. In our research, some participants expressed a self-conscious awareness of the influence of religion on HIV/AIDS stigma among health professionals, although that awareness did not necessarily entail a critical perspective on the potential effects of this influence. On a positive note, religious beliefs were described as moral justification for the provision of health services to PWHAs, although participant narratives show clearly that religious values can result in ambivalence when interacting with PWHAs. God was understood to be an active agent in the deployment of illness and healing, potentially leading to redemption among those who return to an active religious life after infection. Thus, while the illness/healing process was interpreted as a potential motivator to establish a relationship with God, it also implied that it was a godless life that led to initial HIV infection. Finally, some participants explicitly cited biblical verses in their interviews as a means for understanding and evaluating PWHAs and for interpreting the course of the HIV epidemic in Puerto Rico.

In summary, our qualitative results illustrated the following: 1) that health professionals are consciously aware of the role of religion in HIV/AIDS stigma; 2) that such religious beliefs can motivate them to provide services to PWHAs as part of their religious obligation; and 3) that religious beliefs are intertwined with overall conceptualisations of health, illness and service provision for PWHAs in this setting.

Quantitative results

The quantitative results from our study continue to shed light on the role of religion in HIV/AIDS stigma. For the purposes of this article, we have concentrated on two particular aspects of the religious experience: importance placed on religion and frequency of participation in religious events. These two issues have been identified by researchers studying religion as vital aspects of religious understanding in social research (Greenfield and Marks 2007, Williams and Sternthal 2007).

Table III shows a comparison among participants who identified religion as important in their lives and those who did not, and those who participated in religious activities once per year versus those who did not participate in religious activities at least once. We compared

these four groups of participants across all the areas measured in our Stigma and HIV/AIDS Scale. Greater levels of HIV/AIDS stigma are reflected by higher mean values on the stigma scale dimensions. Participants who identified that religion was important to them showed the highest levels of HIV/AIDS stigma (see Table III). A formal examination of mean differences among the four groups showed significant overall mean differences among the importance and participation groups on seven of the 11 sub-dimensions of our scale: 1) being fearful of becoming infected through social interaction ($F(3, 412) = 8.32, p < .0001$); 2) the idea that PWHAs are responsible for their infection ($F(3, 411) = 2.65, p = .049$); 3) believing that PWHAs should be obliged to reveal their status to others ($F(3, 413) = 4.18, p = .006$); 4) interpreting PWHAs as vectors of infection for the rest of society ($F(3, 413) = 2.81, p = .039$); 5) that personal characteristics such as promiscuity and irresponsibility caused the infection ($F(3, 413) = 4.73, p = .003$); 6) having more negative emotions associated with PWHAs ($F(3, 410) = 4.36, p = .005$); and 7) the need to establish social controls over PWHAs. By contrast, the omnibus test for mean differences for a focus on visibility of HIV infection ($F(3, 411) = 2.24, p = .083$), perceiving PWHAs as less productive ($F(3, 413) = 2.23, p = .084$), favoring restrictions on the rights of PWHAs ($F(3, 411) = 2.38, p = .070$), and associations of PWHAs with death ($F(3, 414) = 1.63, p = .182$), did not yield statistically significant differences among the four religion groups.

We also carried out a comparison for a global stigma measure, which consists of the mean of all stigma items contained in the 11 previously-described stigma dimensions. This omnibus test of mean differences was statistically significant ($F(3, 410) = 7.29, p < .0001$), which indicates an overall stigma difference among the four religious ‘importance/participation’ groups. Table III displays the means, standard deviations, and results of post-hoc mean comparisons among the four groups on overall stigma mean and the seven specific stigma dimensions for which there was a significant omnibus test result. The most consistent pattern observed from the post-hoc tests is that the ‘no importance/no participation’ group exhibited significantly less HIV/AIDS stigma than the ‘importance/participation’ group for the overall stigma variable and the specific stigma dimensions of fear of infection, responsibility of PWHAs for their infection, PWHAs as vectors of infection, personal character flaws of PWHAs driving the HIV epidemic, negative emotions associated with PWHAs and the need to control PWHAs. Participants who felt religion was important to them while not participating in religious activities were significantly different from the ‘no importance/no participation’ group on overall stigma as well as fear of infection, responsibility of PWHAs for their infection, and obligation to reveal their serostatus to others. Interestingly, the ‘no importance/no participation’ group differed from the ‘no importance/participation’ group only on fear of infection, with individuals who participated in religious activities exhibiting higher levels of fear of infection.

Discussion

The results from our study show evidence of the complexity entailed in understanding the role of religion on HIV/AIDS stigma in Puerto Rico. Although our qualitative work did not initially intend to address this subject matter, one fourth of participants in Stage 1 mentioned religious related issues as part of our interviews. Those unprompted narratives are useful in shedding light on the conceptualisations of overall health and their relation to religion in the

Puerto Rican setting. Religious beliefs were intertwined with ideas of health, illness and service provision among PWHAs, as well as the attitudes and perceptions of participants regarding those groups most vulnerable to HIV infection. The in-depth interviews point to the need to include religion as an important topic when carrying out public health research on HIV/AIDS, or when considering the kinds of social factors that influence PWA experiences in health care settings.

In the context of the HIV/AIDS epidemic, the role of religion was described as two-fold. On the one hand, religious beliefs were mentioned as cultural factors that influenced or promoted HIV/AIDS stigma. Among the clearest examples of the ways religion-based stigmatisation may occur in some instances are cases in which PWA were thought to be redeemed from the sinful or harmful behaviours that led to their infection, returning to God after they become HIV-positive. On the other hand, religious beliefs were also described as motivating factors for service provision. Helping others and taking care of the sick were described as roles sanctioned by the religious life. Although these two perspectives seem to be contradictory, they should be taken jointly as evidence of the complexities, and occasional ambivalence, of addressing the subject of HIV/AIDS stigma in the health care context in Puerto Rico. Just as the religious experience is not universally experienced, its implications have the potential to be both positive and negative. What is overwhelmingly clear, from the qualitative results of this study, is that religion operates strongly in the experience of health care personnel in the course of their work, with the potential to shape how PWA are treated in clinical settings. Future research should aim to better understand how that influence would manifest itself when providing services to sectors of the population that have been infected with HIV through behaviours that have been highly stigmatised by some religious leaders and communities throughout the epidemic. We recommend that these studies include in-depth and ethnographic research among patient populations of PWA to see how they perceive and experience some of the health care practices described in this analysis.

Our quantitative results show evidence that the importance placed on religion and participation in religious activities are crucial factors when developing studies to better understand HIV/AIDS stigma. Participants who identified that religion was important to them showed the highest levels of HIV/AIDS stigma. Furthermore, those that considered religion important and participated in such activities scored higher on seven of the 11 HIV/AIDS stigma subscales. On the contrary, participants in the 'no importance/no participation' group exhibited significantly less HIV/AIDS stigma than the 'importance/participation' group for the overall stigma variable. These results can serve as an entry point to further address the role of religion on HIV/AIDS stigma. For example, future research should look at the importance placed on religion and participation as separate factors that are associated to HIV/AIDS stigma in different ways, as evidenced by their relation to our overall factor and its sub-scales.

Our study faced several limitations that need to be addressed as part of future endeavors. These included the lack of a probability sample, exclusively cross-sectional data, and unequal group sizes in the quantitative analysis with several groups having relatively small numbers of participants. Nevertheless, these preliminary results propose a scenario in need

of further attention. As HIV/AIDS stigma continues to be a barrier for access to treatment and positive relations between health professionals and PWHA, the development of interventions to reduce it is crucial. These interventions need to take into account the cultural factors that can foster HIV/AIDS stigma, such as the importance placed on religion and participation in such activities. Moreover, such interventions will benefit by working collaboratively with religious leaders and members of religious congregations to leverage the positive aspects of the religious experience (e.g. compassion, helping the less fortunate) while addressing negative aspects of the religious experience that can foster higher levels of stigma (e.g. homophobia).

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Table I

Demographic Data

Variable	Stage 1 (Qualitative interviews)		Stage 2 (Quantitative questionnaire)	
	N	%	N	%
	80	100	421	100
Gender				
Male	24	30	101	24
Female	56	70	319	76
HIV training	41	51	164	39
Services to PWHA	39	49	103 *	45
Knew PWHA	60	75	171	43
Religion is important **	-	-	343	81
Participate in religious activities **	-	-	315	75

* Only 228 participants answered this question.

** Only participants in the quantitative stage were asked these questions.

Table II**Measured Dimensions in the AIDS Stigma Scale**

Measured Dimension	Description	# of items
Rights of PWHA	This dimension proposes that the right of PWHA should be restricted in order to protect society. HIV/AIDS stigma is manifested through the restriction of individual rights.	4
PWHA as obliged to reveal serostatus	This dimension proposes that PWHA should always reveal their status to others. HIV/AIDS stigma is manifested as PWHA are protected by Puerto Rican Law in order not to reveal their status to third parties, including health professionals.	4
Responsibility over infection	This dimension proposes that PWHA are responsible for their infection. HIV/AIDS stigma is manifested as blame solely is fostered at the individual level, without considering social factors that foster infection.	4
Lack of productivity of PWHA	This dimension proposes that PWHA are less productive than others. HIV/AIDS stigma is manifested as PWHA can live productive lives in light of the advancement of antiretroviral medicine.	4
Personal characteristics of PWHA that foster infection	This dimension proposes that personal characteristics (i.e. promiscuity, lack of strong character) facilitate infection. HIV/AIDS stigma is manifested as responsibility over infection is solely placed on the individual and not on social factors.	4
Fear of infection	This dimensions proposes that one should be fearful of becoming infected through social interaction. HIV/AIDS stigma is manifested as the proposed mechanisms of transmission do not facilitate infection (i.e. sharing a bathroom, visiting the same clinic)	4
Emotions associated with HIV/AIDS	This dimension addresses the emotional reactions caused by interacting with PWHA. HIV/AIDS stigma is manifested as negative emotions are presented.	4
Closeness to death	This dimension proposes that PWHA are close to dying. HIV/AIDS stigma is manifested as closeness to death can prevent health professionals from helping PWHA establish life projects.	4
Need to control PWHA	This dimension proposes that government should establish mechanisms to control PWHA in order to protect society. HIV/AIDS is manifested as it fosters an 'us vs. them' perspective.	4
PWHA as vectors of infection	This dimension proposes that PWHA are vectors of infection. HIV/AIDS stigma is manifested as those who are infected are interpreted as solely responsible for transmission and invasive of seronegative society.	4
Body signs of HIV/AIDS	This dimension proposes that HIV/AIDS is visible among PWHA. HIV/AIDS stigma is manifested as the health professionals believe that they can identify PWHA by simply looking at them.	4

Table III
Means and Standard Deviations for HIV/AIDS Stigma Factors by Importance of Religion and Religious Participation

	Participant Group							
	A		B		C		D	
Stigma Factors	N	Mean (SD)	N	Mean (SD)	N	Mean (SD)	N	Mean (SD)
Fear	53	2.38 (0.84) ^{a,b,c}	24	2.92 (0.98) ^a	52	3.10 (1.04) ^b	287	2.99 (0.95) ^c
Responsibility	53	2.75 (0.81) ^a	24	2.91 (0.87)	52	3.23 (0.98) ^a	286	3.00 (0.85)
Visibility	53	2.01 (0.91)	23	2.53 (0.99)	52	2.38 (1.02)	287	2.30 (0.95)
Reveal	53	3.37 (1.17) ^{a,b}	24	3.69 (0.92)	52	4.04 (0.87) ^a	288	3.88 (0.92) ^b
Vector	53	1.87 (0.80) ^a	24	2.07 (0.86)	52	2.27 (1.07)	288	2.21 (0.87) ^a
Productive	52	2.19 (1.13)	24	2.52 (0.99)	52	2.53 (1.13)	289	2.62 (1.00)
Character	53	2.01 (0.89) ^a	24	2.04 (0.84)	52	2.26 (1.02)	288	2.45 (1.02) ^a
Emotions	53	3.02 (0.90) ^a	22	3.46 (1.08)	52	3.24 (1.08)	287	3.49 (0.97) ^a
Death	52	2.71 (1.01)	24	3.06 (0.91)	52	3.10 (1.04)	290	3.01 (0.92)
Rights	52	2.55 (0.84)	24	2.80 (0.72)	52	2.95 (0.70)	288	2.82 (0.78)
Control	53	2.06 (0.83) ^a	23	2.25 (0.84)	52	2.40 (1.02)	288	2.43 (0.95) ^a
Overall Stigma	52	2.44 (0.58) ^{a,b}	24	2.74 (0.59)	52	2.87 (0.64) ^a	286	2.84 (0.58) ^b

Notes: A = No importance/no participation; B = No importance/participation; C = Importance/no participation; D = Importance/participation. Fear = Fear of infection; Responsibility = Responsibility for infection; Visibility = Bodily signs of HIV/AIDS infection; Reveal = Obligation of PWHA to reveal their HIV serostatus to others; Vector = Perception of PWHA as vectors of infection; Productive = Perception of PWHA as unproductive; Character = Personal characteristics of PWHA that foster infection; Emotions = Emotions associated with HIV/AIDS; Death = Closeness to death; Rights = Rights of PWHA; Control = Need to control PWHA.

Superscripted means are significantly different at $p < .05$ using a simulation-based method for multiple comparisons with a stepdown p -value adjustment.