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# Predictors of HIV-related stigmas among African American and Latino religious congregants

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## Abstract

**Objectives—**Inform church-based stigma interventions by exploring dimensions of HIV stigma among African American and Latino religious congregants and how these are related to drug addiction and homosexuality stigmas and knowing someone HIV-positive.

**Methods—**In-person, self-administered surveys of congregants 18+ years old across two African American and three Latino churches (n=1235, response rate 73%) in a western US city with high HIV prevalence. Measures included 12 items that captured dimensions of HIV stigma, a 5-item scale that assessed attitudes towards people who are addicted to drugs, a 7-item scale assessing attitudes towards homosexuality, and questions regarding socio-demographics and previous communication about HIV.

**Results—**63.8% of survey participants were women, mean age was 40.2 years, and 34.4% were African American, 16.8% were U.S.-born Latinos, 16.0% were foreign-born, English-speaking Latinos, and 32.9% were foreign-born, Spanish-speaking Latinos. Exploratory and confirmatory factor analyses identified four dimensions of HIV stigma – *discomfort* interacting with people with HIV (4 items, $\alpha$=0.86), feelings of *shame* "if you had HIV" (3 items, $\alpha$=0.78), fears of *rejection* "if you had HIV" (3 items, $\alpha$=0.71) and feelings of *blame* towards people with HIV (2 items, $\alpha$=0.65). Across all dimensions, after controlling for socio-demographic characteristics and previous communication about HIV, knowing someone with HIV was associated with *lower* HIV stigma, and greater stigma concerning drug addiction and homosexuality were associated with *higher* HIV stigma.

**Conclusions—**Congregation-based HIV stigma reduction interventions should consider incorporating contact with HIV-affected people. It may also be helpful to address attitudes toward drug addiction and sexual orientation.

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**Keywords**

HIV stigma; religious congregations; contact hypothesis; African Americans; Latinos

More than 30 years into the HIV epidemic, HIV-related stigma remains a barrier to prevention and treatment efforts (Earnshaw, Bogart, Dovidio, & Williams, 2013). The U.S. National HIV/AIDS Strategy holds that stigma reduction is essential to reducing HIV-related disparities (White House Office of National AIDS Policy, 2010). African Americans and Latinos continue to be disproportionately affected by HIV, accounting for 65% of new infections in 2010 while representing only 28% of the population (Prevention, 2012).

Faith-based organizations (FBOs) have been suggested as key community partners in addressing HIV disparities (Nunn, et al., 2013; Sachs, 2008; Sutton & Parks, 2013; UNAIDS, 2009; Woldehanna, Ringheim, & Murphy, 2005), but their roles in addressing HIV stigma are unclear. Prior literature on congregation-based HIV prevention interventions has focused almost exclusively on African American churches (Agate, et al., 2005; Baldwin, et al., 2008; Berkley-Patton, et al., 2010; Berkley-Patton, Moore, Hawes, Thompson, & Bohn, 2012; Griffith, Pichon, Campbell, & Allen, 2010; MacMaster, et al., 2007; Marcus, et al., 2004; Tyrell, et al., 2008; Wingood, Simpson-Robinson, Braxton, & Raiford, 2011). Although these and many community initiatives such as The Balm in Gilead (http://www.balmingilead.org/index.php/hiv.html) aim to work with congregations to reduce stigma as part of HIV education and testing programs, there have been few published evaluations of the extent to which such efforts actually reduce stigma.

Further, few studies have measured HIV stigma in church-affiliated populations (Berkley-Patton, et al., 2013; Berkley-Patton, Thompson, et al., 2012; Bluthenthal, et al., 2012; Lindley, Coleman, Gaddist, & White, 2010; Muturi & An, 2010), despite being noted consistently as a barrier to congregation-based HIV programming (Williams, Palar, & Derose, 2011). HIV stigma in congregational settings is often attributed to religious taboos on homosexual contact between men, multiple sex partners, and drug use, which are likely to be viewed through a moral lens, facilitating stigmatization and the casting of blame (and shame). However, no previous church-based studies to our knowledge have measured these related stigmatizing attitudes (regarding homosexuality and drug addiction) and how they might contribute to HIV stigma.

To develop effective HIV stigma reduction interventions in collaboration with FBOs, it is important to explore dimensions and predictors of HIV stigma among church-affiliated populations. We therefore explored HIV stigma and associated stigmas regarding same-sex sexual relations and drug addiction, using baseline data from an intervention study that aimed to reduce HIV stigma among congregants from three Latino and two African American churches in high HIV-prevalence communities.

## Background on HIV Stigma

Previous research has identified two types of stigma relevant to HIV: *instrumental* stigma refers to concern about the potential consequences of interacting with a stigmatized person,

such as becoming infected with HIV, while *symbolic* stigma refers to concern about what the stigmatized condition, such as HIV, symbolizes (Bos, Schaalma, & Pryor, 2008; Herek & Capitanio, 1998). Instrumental stigma can play out in feelings of *discomfort* about interacting with HIV-positive individuals, while symbolic stigma encompasses both an HIV-positive individual's feelings of *shame* for having HIV as well as non-infected individuals' *rejection* and *blame* towards those with HIV.

To understand the predictors of stigma in our study, we draw on the seminal work of Goffman (1963), who described stigmatization as a social process involving the discrediting of members of an entire group based on one or more attributes. We also use the work of Herek (1999), who identified four characteristics of HIV that are likely to evoke stigma: 1) the cause is perceived to be the bearer's responsibility; 2) the condition is unalterable or degenerative; 3) the condition is perceived to be contagious or to place others in harm's way; and 4) the condition is readily apparent to others.

We also draw upon previous work on the predictors of HIV stigma in general (i.e., not specifically HIV-positive) U.S. populations, as well as the few studies of HIV stigma among religious congregants. The most consistent individual-level, independent factors associated with *lower* instrumental and symbolic HIV stigma among general U.S. populations have been younger age, higher education, personal contact with people with HIV or AIDS, greater knowledge about HIV transmission, and more favorable attitudes towards gays (Herek, 1999). The two previous U.S. church-based studies of which we are aware that quantitatively measured HIV stigma focused on African Americans and were somewhat limited in terms of how much they explored the predictors of stigma. Berkley-Patton et al. (2013) found that an HIV education and testing intervention did not reduce HIV stigma among congregants and community members served by outreach programs at four African American churches, and found that only greater HIV knowledge and income (but not age, gender, or religiosity) were predictive of lower HIV stigma score at baseline. Lindley et al. (2010), in a study of congregants, pastors, and pastoral care lay leaders from 20 African American churches, found that male gender, older age, and lower HIV knowledge were associated with higher HIV stigma.

## Focus of this Study

In order to inform African American and Latino church-based interventions to reduce HIV stigma, we focused this study on factors that might be associated with stigma. First, we examined whether personally knowing someone with HIV was associated with *lower* HIV stigma (Herek & Capitanio, 1997; Mall, Middelkoop, Mark, Wood, & Bekker, 2013; Nambiar & Rimal, 2012). Such an association would support the contact hypothesis (Pettigrew & Tropp, 2006), which suggests that intergroup contact can reduce prejudice. We also examined whether stigmas related to drug addiction and homosexuality were associated with *higher* HIV stigma (Capitanio & Herek, 1999; Herek & Capitanio, 1999; Price & Hsu, 1992; St. Lawrence, Husfeldt, Kelly, Hood, & Smith, 1990). Finally, since research has found that individuals who have never discussed HIV with anyone have more negative attitudes toward people with HIV (Genberg, et al., 2009), we also explore whether specific

types of communication about HIV within and outside church are associated with HIV stigma.

In this paper, we: 1) describe HIV stigma scales that we adapted from previous work to characterize four HIV stigma dimensions (discomfort, shame, rejection, and blame); 2) assess the extent to which these HIV stigma scales tap into different components of HIV stigma and examine their relationships to stigmas regarding drug addiction and homosexuality; and 3) test the following hypotheses: a) African American and Latino religious congregants who know someone with HIV will express lower HIV stigma, controlling for other factors; and b) Congregants with higher drug addiction and homosexuality stigmas will have higher HIV stigma after controlling for other factors. No previous studies have examined HIV-related attitudes among Latino congregants, the ways in which multiple dimensions of HIV stigma compare across congregants of different races and ethnicities, the extent to which attitudes regarding homosexuality and drug addiction are associated with HIV-related attitudes in congregational settings, or whether knowing someone with HIV influences HIV-related attitudes in congregational settings.

## Method

### Sample and Participant Selection

Participants were recruited from churches that primarily served African American and Latino congregants in and around the city of Long Beach, CA, a high HIV prevalence area of Los Angeles County that has a cumulative incidence rate (1,347 AIDS cases per 100,000 residents) more than twice that of Los Angeles County and 3 times that of California (Long Beach DHHS, 2012).

Churches were recruited as part of a pilot evaluation of a congregation-based intervention to reduce HIV stigma. The study and all procedures were approved by the RAND Human Subjects Protection Committee, and a Community Advisory Board (CAB) composed of faith and public health leaders guided all phases, including study design and intervention development ( Derose, et al., 2014). Briefly, we identified African American and Latino churches in Long Beach and adjacent areas though local faith-based and telephone directories and our CAB's contacts and fielded a brief telephone screening questionnaire to collect basic information about each congregation (demographics, health-related activities). Of the 61 churches identified, 33 (54%) completed the screener interview, 5 (8%) refused and 23 (38%) never responded. Of the 33 that completed the screener, 11 (5 African American; 6 Latino) were considered eligible for the study. Eligibility criteria included: >70 % African American or Latino; ≥100 typical Sunday attendance; and almost no HIV-related activities (e.g., programs, services, and outreach) conducted at the church previously (based on a free listing by church leadership of HIV-related activities). The eligibility criteria were designed to ensure that our stigma-reduction intervention would reach sufficient numbers of African Americans and Latinos in churches where such activities had not been previously implemented.

The pool of eligible churches (n=11) represented three basic types of congregations: very large (2000+ congregants) Latino Roman Catholic, small (<120 congregants) Latino

Protestant (mostly Pentecostal), and small and mid-sized (<250 congregants) African American Protestant (mostly Baptist). Resources for our pilot evaluation were sufficient to study three matched pairs (6 churches total). We matched churches on key characteristics that have been shown to affect HIV programming in churches: congregation size (a proxy for resources), race-ethnicity, and denomination (Tesoriero, et al., 2000; Williams, et al., 2014) and selected one pair for each type (2 medium African American Baptist, 2 large Latino Roman Catholic, 2 small Latino Pentecostal). Of the six congregations invited to participate, one large Latino Roman Catholic declined, leaving five churches for the pilot.

## Assessments and Measures

We attempted to survey all adult congregants (18+ years old) from the five churches at baseline. Church coordinators and other congregational leaders helped promote the survey within each congregation, and English and Spanish language group survey sessions managed by project survey administrators were conducted at each church site during regularly scheduled ministry meetings and/or after religious services over a one- to two-month period between July and October 2011. Participants received an introductory letter and project brochure in English or Spanish that covered all elements of informed consent; these were reviewed orally (in English or Spanish) with the group by the project survey administrators.

Where possible, we used Spanish versions already available for items and scales in our survey. When no Spanish version existed, we used established procedures for developing culturally-appropriate versions through translation by committee. Specifically, an American Translator Association-certified translator who was a native Spanish speaker from Latin America translated the survey items using broadcast Spanish (suitable for both Los Angeles and the wider Latino population of the U.S.); the translations were then reviewed by a committee of 4 bilingual research team members (including the first author of this article) and 2 bilingual community collaborators. We used a consensus approach to make appropriate changes. Further, we conducted pre-tests of the survey with 68 congregants (42 at an African American Baptist church and 26 at a Latino Roman Catholic church) and solicited their feedback through evaluation forms and group discussions after the survey.

Overall participation rate for the baseline survey was 73%, calculated as a proportion of survey participants over the estimated number of regular congregants at the time of the survey (per church leadership). Participants received a $20 gift card and a meal for completing the survey.

**Key dependent variables—**We adapted items from prior studies that measured the following aspects of HIV stigma (see Table 1), each using a 5-point scale:

1. *HIV stigma – discomfort,* 4 items that asked about how comfortable respondents would feel being around people with HIV in various community settings (school, church, restaurant, and grocery story) (Berkley-Patton, et al., 2013; Herek & Capitanio, 1999).

2. *HIV stigma – shame*, 3 items about the extent to which respondents endorse hypothetical feelings of shame if they had HIV (dirty, ashamed, concerned about mistreatment or discrimination) (Kalichman, et al., 2005; Simbayi, et al., 2007).
3. *HIV stigma – blame*, 2 items about the extent to which respondents endorse beliefs that people with HIV are "responsible" for their illness or have "gotten what they deserve"(Herek, 1999).
4. *HIV stigma – rejection*, 3 items about whether respondents endorse beliefs that if they had HIV, they would be rejected, fired, or couldn't face their families (Lauby, Bond, Eroglu, & Batson, 2006).

**Key predictor variables—**To explore the role of contact in our church-affiliated sample (*knowing someone with HIV*), we asked respondents whether they personally know anyone (friends, family, co-workers, others) who "has HIV or AIDS or has died of HIV" (yes/no), similar to how others have measured direct contact (Herek & Capitanio, 1997; Mall, Middelkoop, Mark, Wood, & Bekker, 2013; Nambiar & Rimal, 2012). For *drug addiction and homosexuality stigmas*, we adapted a 5-item scale (see Table 2) on the extent to which respondents endorsed attitudes towards alcoholics (Ronzani, Higgins-Biddle, & Furtado, 2009), changing "alcoholics" and "alcoholism" to "drug addicts" and "drug addiction" (Florez, et al., 2015). For homosexuality stigma, we used 6 items from the 19-item Heterosexual Attitudes Towards Homosexuality (HATH) scale (Larsen, Reed, & Hoffman, 1980) and added one item ("Homosexuals should be barred from the clergy"). For all variables, response categories ranged from "agree strongly" to "disagree strongly."

**Other predictor variables—**To explore how *previous communication about HIV at church* was related to stigma, we asked respondents about information they may have received about HIV at their particular church in the last six months (e.g., hearing the pastor talk about HIV, hearing a testimonial by a person affected by HIV, attending a health fair where HIV information was provided, attending an HIV workshop, etc.); "yes/no" responses were summed across 8 types of activities to create a summary scale of information received at church (possible values, 0–8). In addition, we asked about: 1) the number of *people in the church* (from "none" to "20 or more") with whom they had spoken in the previous six months about HIV; 2) the number of people *outside the church* with whom they had spoken in the previous six months about HIV; and 3) whether they had spoken (yes/no) with any *church leaders* (pastor, priest, deacon) about any topic related to HIV.

**Socio-demographic variables—**We included the following control variables, given their association with HIV stigma among African Americans in previous church-based studies (Lindley, et al., 2010): *age* was a continuous variable; *gender* was defined as male (reference group) and female; and *highest level of education*, a 6-category variable ranging from "6$^{th}$ grade or less" to "some graduate school or graduate degree." In addition, since stigma is likely influenced by cultural norms, we created groups related to *race-ethnicity*, *nativity*, and *English language fluency*: 1) African Americans (reference group); 2) U.S.-born Latinos; 3) foreign-born Latinos who reported speaking English "well or "very well"

(high English proficiency) and 4) foreign-born Latinos who reported speaking English "not well" or "not at all" (low English proficiency).

## Data Analysis

**Exploratory and confirmatory factor analyses (EFA and CFA, respectively)—** We used random subsamples of African American and Latino survey participants to cross-validate the properties of the four HIV stigma scales. For the first random subsample ($N$ = 616), we conducted a nonlinear exploratory factor analysis for ordinal data with the logit link function. M*plus* version 5 (Muthén & Muthén, 1998–2010) software was used to perform a Crawford-Ferguson oblique Varimax rotation (Crawford & Ferguson, 1970). The mean and variance-adjusted weighted least squares estimator (WLSMV) was used for computational ease. Next, the factor structure identified in the previous EFA was used to model a 2-group CFA among the second random subsample of African American (reference group) and Latino respondents ($n_{\text{African American}}$ = 206, $n_{\text{Latino}}$ = 411). The CFA aims to replicate the factor structure identified by the EFA by estimating loadings for items defined by the EFA factors and constraining all other loadings across factors to zero.

**Correlations among stigma scales—**We computed bivariate correlations among stigma scales and the internal consistency of each scale ($\alpha$).

**Imputation procedures—**Rates of missing data for our study variables were relatively low, ranging from 1% to 5% per item. Before conducting multivariate analyses, we used IVEware 0.2 to impute missing data by sequential regression multivariate imputation (Raghunathan, Lepkowski, Van Hoewyk, & Solenberger, 2001). Five imputed datasets were created for the baseline survey; all analyses were adjusted using standard rules for aggregating results across multiply imputed data sets (Rubin, 1987).

**Multivariate analyses—**Multivariate linear regression models were fit to examine the independent associations between knowing someone with HIV and each type of HIV stigma while examining and controlling for individual socio-demographic characteristics, drug addiction and homosexuality stigma, and prior communication about HIV (at church and elsewhere). Dummy variables for church were included to control for clustering at the church level, since random effects or normal survey cluster adjustments cannot be applied with only five clusters. Fixed effects of church are the best available means to account for the similarity of responses expected within churches and to ensure that standard errors for other predictors in the model are not under-estimated. We standardized the HIV stigma scales by dividing them by the observed standard deviation in our sample, thereby allowing our regression coefficients to be interpreted as effect sizes or Cohen's d metrics (Cohen, 1988). Effects sizes less than 0.20 are considered small; 0.20 – 0.50 moderate; and greater than 0.50 large. Also, continuous and ordinal predictors (including the drug and homosexuality stigma scales) were standardized so that regression coefficients for these measures represent the effect of a one standard deviation change in the outcome measure.

**Sensitivity analyses—**To minimize the effect of observed confounders, we estimated propensity score weights that balanced individuals who report knowing someone with HIV

and individuals who do not on all other predictors in the model. We then re-ran our multivariate regression models with these weights.

A p-value of less than 0.05 was considered statistically significant for all analyses.

## Results

A total of 1,319 completed surveys were returned across the five churches. We used the 1,235 surveys returned from African Americans (N=425), U.S.-born Latinos (N=206), foreign-born Latinos with high English proficiency (N=199), and foreign-born Latinos with low English proficiency (N=405). Given our focus on African Americans and Latinos, we excluded the small numbers of other race-ethnic groups (Asian=36, white=27, American Indian or Alaskan native=2, other race-ethnicity=5). Further, 8 U.S.-born Latinos who reported low English proficiency were excluded because this group was too small to be analyzed separately.

**Participant Characteristics—**Table 3 provides participant characteristics for the entire sample and by subgroups and identifies statistically significant differences. People who personally know someone with HIV were more likely to be African American, less likely to be foreign-born Latinos, had higher levels of education, reported having received more information about HIV at church, had spoken about HIV with more people (inside and outside church), and had lower scores on the drug stigma and HIV discomfort, shame and blame scales than did people who do not know someone with HIV. Socio-demographic characteristics varied substantially between the African American and Latino churches, with 58%–61% of respondents female at the Latino churches vs. 67–73% female at African American; and 39–43% with less than a high school education at Latino vs. 2–8% at African American churches. Mean age was between 37–39 years at Latino churches vs. 37–48 years at African American churches.

**EFA—**Based on interpretability of communalities and the percentage of explained variance accounted for by each factor, a 4-factor solution fit better than alternative models with fewer or more factors. Table 4 indicates that the four HIV stigma domains are represented by item subsets that load strongly (> 0.5) only on their hypothesized factor. The item, “If you had HIV, you couldn’t face your family” was the only one that did not meet the “strong” threshold on any factor, suggesting that the *rejection* factor primarily captures the fear of rejection from employers and “people” in general. Although the “family” item is more strongly related to the other 2 *rejection* items than it is to items in any other factor, the relationship is somewhat weaker (r = about 0.4).

**CFA—**We cross-validated the 4-factor EFA solution by modeling a 2-group, 4-factor CFA using the second random subsample of African American and Latino respondents (*N*=617). Using WLSMV estimation and theta parameterization in M*plus*, fit indices suggest that the final model adequately fits the data, although the RMSEA value is above what is commonly accepted as indicating close fit (Browne & Cudeck, 1993; Hu & Bentler, 1999; MacCallum, Browne, & Sugawara, 1996; Steiger, 2007), $\chi^2(136) = 424$, *RMSEA* = .083, TLI = .965. Compared to the African American subgroup, Latino standardized factor means were higher

on the discomfort and blame factors [standardized mean difference = .60 (SE=.09, $p < .001$) and .22 (SE = .06, $p = .04$, respectively]. There were no statistically significant differences between African Americans and Latinos on the rejection and shame factors.

**Correlations among Stigma Scales (Table 5)—**All the scales were correlated (p<.001) with one another, though most correlations were weak (<0.35). The correlations among the HIV shame, rejection, and blame scales represented medium to large associations, whereas those among the drug addiction, homosexuality, and HIV stigma scales represented small to medium associations.

**Multivariate Analyses (Table 6)—**Knowing someone HIV-positive was negatively associated with all HIV stigma scales (ranging from β= −0.14, p<.05 for shame to β= −0.25, p<.001 for discomfort), even after adjusting for socio-demographics, previous communication about HIV, and mean drug and homosexuality stigma. The estimated impact of knowing someone with HIV or who had died of AIDS was similar in magnitude to the effect of a one standard deviation change in our drug stigma and homosexuality stigma scales. Point estimates from our propensity score weighted models (results not shown) were very similar, though a few results moved from statistically significant to marginally statistically significant (p ≈0.06) after incorporating the weights. Mean drug and homosexuality stigmas were positively related to all the HIV stigma scales (ranging from β = 0.12, p<.001 for homosexuality stigma and discomfort to β = 0.25 p<.001 for homosexuality stigma and blame).

A number of socio-demographic and communication variables were related to HIV stigma scales, albeit inconsistently. U.S.-born Latinos had higher scores than African Americans on *discomfort* (β=0.35, p<.01). Both English-speaking and Spanish-speaking foreign born Latinos had lower scores than African Americans on *rejection* (β = −0.37, p<.01, β = −0.29, p<.05, respectively) and *blame* (β = −0.32, p<.01 and β = −0.28, p<.05, respectively). Those with higher education (β = −0.12, p<.001) had lower *discomfort*. Female gender was negatively associated (β = −0.17, p<.01) with *blame*. Age was negatively associated with *shame* (β = −0.14, p<.001). Having spoken with more people outside church about HIV (β = −0.07, p<.05) was associated with lower *discomfort.* Having received more types of information about HIV at church was positively associated (β = 0.04, p<.01) with *blame* and talking with more people at church about HIV was negatively associated with *shame* (β = −0.06, p<.05).

## Discussion

Our study validated four HIV stigma scales adapted from previous work and confirmed that these scales measure unique aspects of stigma – discomfort, shame, rejection, and blame – among African American and Latino church congregants. A statistically significant amount of the variance in HIV stigma was explained by drug and homosexuality stigmas. In fact, these two other stigma scales explain an additional 5 – 10 % of the variance for each of the HIV stigma subscales, resulting in more than doubling the R-squared values of our regression models. Although previous literature has suggested that religious-based attitudes that condemn same-sex relations and substance abuse contribute to and/or strengthen HIV

stigma (Fullilove & Fullilove, 1999; Williams, et al., 2011), these relationships have only rarely been tested quantitatively and never previously in a sample of religious congregants. In a general national sample, Capitanio and Herek (1999) found that both attitudes toward injection drug users and attitudes toward gay men were associated with HIV stigma. Coupled with our findings, this suggests that in addressing HIV stigma, it may be helpful to also address attitudes toward drug addiction and homosexuality.

Even taking into account drug and homosexuality stigma, however, we found that knowing someone with HIV or who had died of AIDS is associated with lower HIV stigma among African American and Latino congregants across all stigma dimensions. In fact, adding this measure to our models explained an additional 0.4 – 1.2% of the variance for each of the HIV stigma subscales above and beyond the other control covariates and the drug and homosexuality stigma scales. Herek and Capitanio (1997) found that people in the U.S. who had direct contact with a person with AIDS were less supportive of coercive policies, less likely to blame people with AIDS for having become infected, and less likely to say that they would avoid people with AIDS in various situations. Similarly, a study in South Africa found that people who know someone with HIV had less stigmatizing attitudes toward people with HIV on each of two subscales: blame and judgment, and interpersonal distancing (Visser, Kershaw, Makin, & Forsyth, 2008).

Our finding that congregants who know someone with HIV have less stigmatizing attitudes suggests that congregation-based interventions to reduce HIV stigma should focus on ways to increase positively toned contact with people with HIV. Indeed, previous research suggests that effective HIV stigma-reducing interventions should include both an informational component (to increase knowledge about HIV transmission) and a contact component (to promote direct or indirect interaction with people with HIV) (Brown, Macintyre, & Trujillo, 2003; Heijnders & Van Der Meij, 2006; Mahajan, et al., 2008). A recent review found that over the previous decade, there has been considerable progress in developing stigma reduction interventions that include a contact component, but none of the studies reviewed were conducted in faith-based settings (Stangl, Lloyd, Brady, Holland, & Baral, 2013).

Congregational settings offer many opportunities to increase contact with people with HIV, but there are also challenges. For example, there is some evidence that congregants often disclose their HIV status to their pastors to seek spiritual, emotional, and material support (Maman, Cathcart, Burkhardt, Omba, & Behets, 2009; Miller & Rubin, 2007), but keep their status hidden from other church members for fear of being judged immoral (Miller & Rubin, 2007). One alternative is to invite HIV-positive people of faith, but from outside the individual congregation, to give testimonials about their experiences of living with HIV. Other approaches in congregations could facilitate indirect contact through video testimonials or imagined contact scenarios in which individuals are asked to think about a positive interaction with a stigmatized individual. Social psychological lab-based studies have found that visualization exercises can help reduce negative attitudes and prejudice towards stigmatized groups (Crisp & Turner, 2009), but little research has been conducted on video testimonials.

Contact between congregants and people with HIV could also be increased by developing programs or ministries within congregations that provide direct support to people affected. Studies of FBOs' HIV efforts outside the U.S. have generally concluded that care and support activities for people with HIV are considered "traditional strengths" of FBOs (Parker & Birdsall, 2005; Tiendrebeogo & Buykx, 2004; Woldehanna, et al., 2005). However, few U.S. studies of congregational HIV activities have examined faith-based care and support activities (Cunningham, Kerrigan, McNeely, & Ellen, 2011; Derose, et al., 2011; Shelp, DuBose, & Sunderland, 1990); more commonly, these U.S. studies have focused on HIV prevention education and testing (Agate, et al., 2005; Berkley-Patton, et al., 2010; Griffith, et al., 2010; Marcus, et al., 2004; Tyrell, et al., 2008). Certainly, with changes in the epidemic that have transformed HIV from a debilitating disease carrying a likely death sentence to a manageable chronic disease, and the development of supportive systems in communities that address the needs of people with HIV, the need for FBO-sponsored acute care and support activities may have diminished over time. However, the much larger population of people living with HIV as a chronic disease still has needs that are not being fully met. Thus, there are still ways that faith communities could provide direct support to people with HIV, which would have the additional possible benefit of reducing stigma within the congregation.

We found differences by race/ethnicity across the stigma scales. U.S.-born Latinos had higher levels of discomfort with hypothetical scenarios that involved interacting with HIV-positive people in their communities than African Americans did. The HIV-discomfort scale taps into fear of contagion, which contributes to stigma (Bos, et al., 2008; Herek, 1999). Thus, it is not surprising that education was negatively related to discomfort. We were somewhat surprised that foreign-born Latinos (both those with high and low English proficiency) had lower HIV stigma on the rejection and blame scales than African Americans, since earlier work (Darrow, Montanea, & Gladwin, 2009) found that foreign birth was associated with *higher* stigma among African American, Afro-Caribbean, Haitian, and Latino young adults (ages 18–39) in Miami-Dade County. However, differences may depend on country of origin and associated cultural experiences with the disease, which are different in Miami compared to Los Angeles. Future studies may look to explore how such cultural differences affect these attitudes and how they can inform interventions. For example, our findings suggest that interventions in Latino churches may need to emphasize increasing knowledge about HIV and how it is transmitted (to reduce discomfort), whereas in African American churches, the focus may need to be more on compassion for those affected (to reduce rejection and blame).

Few of the variables related to previous communication about HIV were found to be associated with HIV stigma. The exceptions were: (1) a higher number of people outside church that the respondent had spoken with about HIV was associated with *lower* discomfort; (2) a higher number of people at church that the respondent had spoken with about HIV was associated with *lower* shame' and (3) a higher total of HIV information received at church was associated with *higher* blame. For each of these measures, the magnitude of impact on HIV stigma scales was relatively small (0.04 to 0.07 effect sizes). We are limited in our ability to interpret these associations because we have no information

on the specific content of the communication. However, the observed associations do suggest that conversations that occur at church and outside church may be different, or have differential associations with church-goers' HIV-related attitudes.

## Limitations

Our study has several limitations. First, the five congregations that participated may differ in important ways from other churches in the same area or from churches in different areas serving populations that appear similar. The fact that the participating churches had agreed to collaborate in testing a pilot intervention to reduce HIV stigma and promote HIV testing suggests that their clergy and lay leaders may have been more inclined than some churches to view HIV as a public health challenge rather than one that calls for moral judgment. We did, however, find stigmatizing attitudes among the congregants we surveyed.

Second, although our multivariate analyses adjusted for several characteristics of congregants and we performed a sensitivity analysis that used propensity-score weights to balance these two groups, those who reported knowing someone with HIV may have differed from those who did not report knowing anyone in unmeasured ways that could help account for the differences in HIV stigma we observed between these groups. For example, one factor we did not measure was HIV knowledge, which, as noted earlier, has been associated with HIV stigma. A similar caution applies to the observed associations between drug-related and homosexuality-related stigmas, on the one hand, and HIV stigma on the other.

Third, the analyses in this study are cross-sectional, and causal relationships cannot be inferred between our key predictors and reductions in HIV stigma.

Finally, we did not collect data on theological and church doctrines of participating congregations regarding HIV, homosexuality, and drug addiction. Our previous formative work explored these in depth among congregations that were diverse in race-ethnicity (mostly African American congregations and Latino congregations) and denomination and found that policies and clergy and lay leader attitudes regarding these issues were diverse across and sometimes even within congregations (Bluthenthal, et al., 2012). Understanding how such policies and attitudes influence individual congregants' HIV-related attitudes is a complex yet important task for future research.

## Conclusions

This study elucidates the multi-dimensional aspects of HIV stigma and some factors that potentially contribute to stigma among a church-affiliated population that was diverse both racially-ethnically and across various faith traditions. Negative attitudes towards drug addiction and homosexuality were associated with greater stigma, but knowing someone HIV-positive appeared to overcome some of these negative attitudes. These findings offer clear direction for the development of congregation-based stigma reduction interventions.

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**Table 1**

HIV stigma constructs and items

| Stigma Construct | Description | Source(s) | Measures | | Response Scale |
|---|---|---|---|---|---|
| Discomfort | Feeling uncomfortable interacting with people with HIV in various community settings (hypothetical) | Herek 1999; Berkley-Patton et al. 2013 | **1** | Suppose you had a young child who was attending school where one of the students was known to have HIV, the virus that causes AIDS. How would you feel about your child attending that school? | • Very comfortable<br>• Somewhat comfortable<br>• Uncertain<br>• Somewhat uncomfortable<br>• Very uncomfortable |
| | | | **2** | Suppose you attended a church and found out that some of the members were HIV-positive. How would you feel about attending that church? | |
| | | | **3** | How comfortable would you feel about drinking out of a glass in a restaurant if you knew that a few days earlier someone with HIV disease drank out of the same glass, even if it was washed and sterilized? | |
| | | | **4** | Suppose that you found out that the owner of a small neighborhood grocery store where you liked to shop had HIV. How would you feel about shopping at that store? | |
| Shame | Feeling shame about being HIV positive (hypothetical) | Kalichman et al. 2005; Simbayi et al. 2007 | **1** | If I had HIV, I would feel dirty. | • Agree strongly<br>• Agree somewhat<br>• Uncertain<br>• Disagree somewhat<br>• Disagree strongly |
| | | | **2** | If I had HIV, I would be ashamed. | |
| | | | **3** | If I had HIV, I would be concerned that I might be mistreated or discriminated against. | |
| Rejection | Stigma of being HIV positive (hypothetical) | Lauby et al. 2006 | **1** | If you had HIV, people would reject you | • Agree strongly<br>• Agree somewhat<br>• Uncertain<br>• Disagree somewhat<br>• Disagree strongly |
| | | | **2** | If you had HIV, you might get fired from your job or not be able to get a new job | |
| | | | **1** | If you found out you had HIV, you couldn't face your family | |
| Blame | Blaming people with HIV | Herek 1999 | **1** | Most people with HIV are responsible for having their illness | • Agree strongly<br>• Agree somewhat<br>• Uncertain<br>• Disagree somewhat<br>• Disagree strongly |
| | | | **2** | People who got HIV through sex or drug use have gotten what they deserve | |

## Table 2

Drug addiction and homosexuality stigma constructs and items

| Stigma Construct | Description | Source | Measures | | Response Scale |
|---|---|---|---|---|---|
| Drug addiction stigma | Stigmatizing attitudes toward drug addicts | Ronzani et al. 2009 | **1** | Drug addiction is a sign of weakness in character | • Agree strongly<br>• Agree somewhat<br>• Uncertain<br>• Disagree somewhat<br>• Disagree strongly |
| | | | **2** | Drug addicts do not care about their problems | |
| | | | **3** | Drug addicts are morally weak people | |
| | | | **4** | Drug addicts are people with no will power | |
| | | | **5** | Drug addicts do not want to quit using drugs | |
| Homosexuality stigma | Stigmatizing attitudes toward homosexuality | Larsen et al. 1980 | **1** | Homosexuals should not be allowed to work with children | • Agree strongly<br>• Agree somewhat<br>• Uncertain<br>• Disagree somewhat<br>• Disagree strongly |
| | | | **2** | Homosexuality is immoral | |
| | | | **3** | Homosexuality is a sin | |
| | | | **4** | Homosexuality endangers the institution of the family | |
| | | | **5** | Homosexuals should be barred from the clergy | |
| | | | **6** | Those in favor of homosexuality tend to be homosexuals themselves | |
| | | | **7** | I avoid homosexuals whenever possible | |

## Table 3

Baseline survey participant characteristics (n=1,235)

| Characteristic | All (n=1235) Mean (SD) | Know HIV+ person (n=393) | Do not know HIV+ person (n=842) | p-value |
|---|---|---|---|---|
| Female (%) | 63.8% | 67.6% | 62.0% | 0.0941 |
| Mean age | 40.2 (15.1) | 41.8 | 39.5 | 0.2987 |
| Race-ethnicity (nativity, language proficiency) (%) | | | | |
| African American | 34.4% | **53.7%** | **25.4%** | **<.0001** |
| Latino (U.S.-born, high English proficiency) | 16.8% | 14.7% | 17.7% | 0.6579 |
| Latino (foreign born, high English proficiency) | 16.0% | 12.5% | 17.6% | 0.9829 |
| Latino (foreign born, low English proficiency) | 32.9% | **19.1%** | **39.3%** | **0.0004** |
| Highest education (%) | | | | |
| 6th grade or less | 16.5% | 10.1% | 19.4% | 0.1128 |
| 7–11th grade | 15.6% | **8.5%** | **18.8%** | **0.0100** |
| High School or GED | 28.3% | 23.6% | 30.4% | 0.1858 |
| Some college (no degree) | 20.4% | 25.8% | 17.9% | 0.1074 |
| Associate's degree | 5.2% | 7.9% | 3.9% | 0.1166 |
| Bachelor's degree | 7.3% | 10.9% | 5.6% | 0.2278 |
| Some graduate school or degree | 6.9% | **13.1%** | **4.0%** | **0.0002** |
| Knows someone HIV positive (%) | 31.6% | n/a | n/a | n/a |
| Total HIV information received at church (0–8) | 1.9 (2.2) | **2.3** | **1.7** | **0.0025** |
| Number of people spoken with about HIV at church (%) | | | | |
| None | 75.9% | **66.2%** | **79.0%** | **<.0001** |
| 1–2 people | 15.8% | **23.2%** | **12.4%** | **<.0001** |
| 3–5 people | 5.4% | 6.1% | 5.1% | 0.1978 |
| 6–9 people | 1.9% | 2.1% | 1.8% | 0.5412 |
| 10–19 people | 0.9% | 0.9% | 0.9% | 0.6746 |
| 20 or more people | 1.1% | 1.4% | 0.9% | 0.3901 |
| Number of people spoken with about HIV outside church (%) | | | | |
| None | 51.2% | **39.1%** | **56.7%** | **<.0001** |
| 1–2 people | 25.4% | 29.2% | 23.7% | 0.1312 |
| 3–5 people | 13.6% | 15.6% | 12.7% | 0.1147 |
| 6–9 people | 4.5% | **7.1%** | **3.3%** | **0.0064** |
| 10–19 people | 2.4% | **4.0%** | **1.6%** | **0.0021** |
| 20 or more people | 2.9% | 4.9% | 2.0% | 0.0514 |
| Spoke with clergy about HIV (yes/no) | 11.2% | **13.2%** | **10.2%** | **0.0136** |
| Mean drug stigma (1–5) | 3.2 (1.3) | **3.0** | **3.4** | **0.0298** |
| Mean homosexuality stigma (1–5) | 3.0 (1.1) | 2.9 | 3.0 | 0.2307 |
| Mean HIV stigma – discomfort (1–5) | 2.8 (1.6) | **2.4** | **2.9** | **<.0001** |
| Mean HIV stigma – shame (1–5) | 3.5 (1.1) | **3.3** | **3.6** | **0.0037** |
| Mean HIV stigma – rejection (1–5) | 3.2 (1.1) | 3.1 | 3.3 | 0.0635 |
| Mean HIV stigma – blame (1–5) | 2.4 (1.2) | **2.2** | **2.5** | **0.0026** |

Statistically significant differences ($p<.05$, adjusted for church-level clustering) between people who knew someone with HIV vs. those who did not are bolded.

**Table 4**

Factor loadings from exploratory factor analysis of 12 items related to HIV stigma

| | Factor | | | |
|---|---|---|---|---|
| **Measure Content** | **Discomfort** | **Shame** | **Rejection** | **Blame** |
| Discomfort with young child attending school where student has HIV | **0.78** | 0.11 | −0.04 | −0.03 |
| Discomfort with attending church where some members had HIV | **0.85** | −0.02 | 0.00 | 0.16 |
| Discomfort drinking from glass after someone with HIV drank out of it even if washed and sterilized | **0.81** | 0.09 | 0.08 | −0.05 |
| Discomfort shopping at neighborhood grocery store with owner who has HIV | **0.84** | −0.03 | 0.05 | 0.07 |
| Would feel dirty (if had HIV) | 0.08 | **0.71** | 0.00 | 0.23 |
| Would be ashamed (if had HIV) | 0.01 | **0.94** | 0.04 | 0.03 |
| Would be concerned about mistreatment or discrimination (if had HIV) | −0.11 | **0.52** | 0.26 | −0.12 |
| People would reject you (if had HIV) | −0.02 | 0.14 | **0.77** | −0.04 |
| Might get fired from job or not be able to get a new job (if had HIV) | 0.03 | −0.11 | **0.80** | 0.10 |
| Couldn’t face family (if had HIV) | 0.07 | 0.24 | 0.35 | 0.20 |
| People with HIV are responsible for illness | −0.10 | 0.14 | 0.06 | **0.63** |
| People who got HIV through sex or drug use have gotten what they deserve | 0.03 | −0.01 | 0.02 | **0.80** |

Note: Loadings of 0.50 or greater in boldface. A 4-factor solution accounted for 75% of the total explained variance.

*Cultur Divers Ethnic Minor Psychol*. Author manuscript; available in PMC 2016 April 01.

**Table 5**

Correlations among stigma scales and reliability of each scale

| Stigma Scales (Reliability) | 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|---|
| 1. HIV discomfort (α = 0.86) | | | | | | |
| 2. HIV shame (α = 0.78) | 0.22 | | | | | |
| 3. HIV rejection (α = 0.71) | 0. 20 | 0.49 | | | | |
| 4. HIV blame (α = 0.65) | 0.18 | 0.40 | 0.34 | | | |
| 5. Drug addiction (α = 0.90) | 0.29 | 0.22 | 0.24 | 0.31 | | |
| 6. Homosexuality (α = 0.88) | 0.18 | 0.22 | 0.21 | 0.31 | 0.26 | |

Note: p<.0001 for all correlations

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**Table 6**

Multivariate associations between socio-demographic characteristics, past experience with and communication about HIV, and attitudes about drug use and homosexuality and HIV stigma (N=1,235 for all models)[a]

| Variable | HIV stigma factors (95% CI) | | | |
|---|---|---|---|---|
| | Discomfort | Shame | Rejection | Blame |
| Knows someone HIV+ | **−0.25 (−0.37, −0.13)** *** | **−0.16 (−0.29, −0.03)** * | **−0.14 (−0.27, −0.01)** * | **−0.15 (−0.28, −0.03)** * |
| Female gender | −0.02 (−0.13, 0.09) | 0.02 (−0.10, 0.14) | 0.04 (−0.08, 0.16) | **−0.17 (−0.28, −0.06)** ** |
| Age (continuous) | 0.03 (−0.03, 0.10) | **−0.14 (−0.21, −0.07)** *** | −0.01 (−0.07, 0.05) | −0.05 (−0.12, 0.01) |
| U.S.-born Latino[b] | **0.35 (0.13, 0.57)** ** | 0.12 (−0.10, 0.33) | −0.11 (−0.33, 0.11) | 0.03 (−0.19, 0.26) |
| Foreign-born Latino, high English proficiency[b] | 0.03 (−0.19, 0.25) | −0.09 (−0.32, 0.13) | **−0.37 (−0.60, −0.15)** ** | **−0.32 (−0.55, −0.10)** ** |
| Foreign-born Latino, low English proficiency[b] | 0.13 (−0.08, 0.35) | −0.21 (−0.43, 0.01) | **−0.29 (−0.51, −0.07)** * | **−0.28 (−0.51, −0.05)** * |
| Higher education | **−0.12 (−0.19, −0.05)** *** | 0.02 (−0.05, 0.09) | 0.02 (−0.05, 0.09) | −0.04 (−0.11, 0.03) |
| Total HIV information received at church | 0.01 (−0.05, 0.07) | −0.04 (−0.10, 0.03) | −0.01 (−0.07, 0.06) | **0.08 (0.02, 0.14)** ** |
| Number of people spoken with about HIV at church | 0.04 (−0.02, 0.11) | **−0.06 (−0.13, 0.00)** * | −0.03 (−0.09, 0.04) | 0.01 (−0.07, 0.08) |
| Number of people spoken with about HIV outside church | **−0.07 (−0.13, −0.01)** * | 0.05 (−0.01, 0.12) | 0.03 (−0.04, 0.09) | 0.00 (−0.07, 0.06) |
| Spoke with clergy about HIV (yes/no) | 0.00 (−0.18, 0.19) | 0.11 (−0.09, 0.31) | 0.07 (−0.12, 0.26) | 0.13 (−0.09, 0.35) |
| Drug addiction stigma scale | **0.16 (0.10, 0.22)** *** | **0.22 (0.16, 0.29)** *** | **0.18 (0.12, 0.25)** *** | **0.19 (0.13, 0.25)** *** |
| Homosexuality stigma scale | **0.12 (0.06, 0.18)** *** | **0.19 (0.13, 0.25)** *** | **0.17 (0.11, 0.23)** *** | **0.25 (0.19, 0.31)** *** |

[a] Coefficients shown in table are standardized; bolded entries are statistically significant (p<.05)

[b] Reference group: African American

* p<0.05;

** p<0.01;

*** p<0.001