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In what ways do religious congregations address HIV? examining predictors of different types of congregational HIV activities

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ABSTRACT

Religious congregations play an important role in HIV prevention and care. However, most research on congregation-based HIV activities has focused on prevention. Using data from a nationally representative survey of U.S. congregations, this study found that 18.6% of congregations were engaged in some type of HIV activity; 8.7% engaged in prevention; 7.6% offered support to people with HIV; 7.4% raised awareness; and 7.6% provided donations for other organizations' HIV activities. Among congregations that participate in some type of HIV activities, having more educated clergy is associated with higher odds of engaging in support, raising awareness, and giving donations relative to prevention activities. Being a predominantly African-American congregation is associated with lower odds of these other three types of HIV activities compared to prevention activities. Understanding the factors associated with specific types of HIV activities helps inform policy and practice related to congregation-based HIV programming.

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Introduction

Despite advances in treatment, HIV is a leading cause of U.S. mortality and morbidity. An estimated 1.1 million people are now infected, with 15% unaware of their infection because they have not been diagnosed (CDC, 2018). African Americans bear a heavy burden. For example, although they comprise only about 12% of the U.S. population, they account for over 40% of all existing and new HIV cases (CDC, 2018). Addressing HIV requires developing solutions for both health care and community-based settings. Faith-based organizations such as religious congregations are uniquely positioned to address HIV within community settings (Eke et al., 2010;

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Cunningham, Kerrigan, McNeely, & Ellen, 2011; Werber, Derose, Dominguez, & Mata, 2012; Frenk & Trinitapoli, 2013; Szaflarski et al., 2013; Abara, Coleman, Fairchild, Gaddist, & White, 2015; Stewart, Thompson, & Rogers, 2016). Many congregations are longstanding, stable entities within communities that provide empowerment and support and promote health among members (Wong, Fulton, & Derose, 2017; Chaves & Eagle, 2016; Cnaan, 2002). Religious congregations have complex social networks that can be leveraged for health promotion and to disseminate information about community problems and resources (Young, Shoptaw, Weiss, Munjas, & Gorbach, 2011). Congregations also provide access to such resources as informal support, food, health care, and educational and job opportunities through extended social networks and linkages with other community institutions (Fulton, 2016; Chaves & Tsitsos, 2001). Previous research has shown that religious organizations can promote health and well-being, both within their congregations and through outreach to the community (Campbell et al., 2007; DeHaven, Hunter, Wilder, Walton, & Berry, 2004). Moreover, congregations have access to and experience in addressing the needs of disadvantaged and high-risk populations who may be adversely impacted by HIV, particularly African-American congregations. African Americans are more likely to self-identify as religious than the general population (Sahgal & Smith, 2009) and African-American congregations have demonstrated capacity to provide health and social services support to their communities (Blank, Mahmood, Fox, & Guterbock, 2002).

Congregations contribute more resources toward meeting social needs than any other type of voluntary organization whose primary function is not social service provision (Chaves 2004; Chaves & Eagle, 2016). Even though congregations collectively make a substantial contribution to social services (Chaves and Tsitsos, 2001; Cnaan, 2006), not all congregations contribute equally (Fulton, 2016). Congregations vary substantially in the number of programs and types of social services they offer (Chaves & Tsitsos, 2001; Cnaan, 2002; Wuthnow, 2004). For example, a substantially smaller proportion of congregations (5.7%) have developed HIV programs than other types of health programs (57.5%) (Williams et al., 2015).

There has been increased focus on the role that congregations can play in reducing HIV incidence and disparities (National HIV/ADIS Strategy for the United States, 2015; Valdiserri, 2010). But, given that so many congregations' general involvement in health-related activities and the fact that many HIV activities (e.g., counseling, education, and pastoral care) align well with congregational activities, it is important to understand why relatively few congregations engage in HIV activities and what factors serve as facilitators or barriers to these activities (Bluthenthal, Palar, Mendel, Kanouse, Corbin, & Derose, 2012). A growing literature on this topic

suggests that the factors positively related to congregational HIV activities include the congregation's perceived need to address HIV (Chin, Mantell, Weiss, Bhagavan, & Luo, 2005; Derose et al., 2010; Hernandez, Burwell, & Smith, 2007; Hicks, Allen, & Wright, 2005). Perceived need in turn, can be affected by contextual factors such as a congregation's location in a central city vs suburb (Szaflarski et al., 2013). Other factors related to congregational involvement in HIV include engaging in a process to assess community needs (Williams et al., 2015); pastor knowledge about HIV or experience developing such programs (Tesoriero et al., 2000); greater resources including congregation size, staffing, and budgets (Szaflarski et al., 2013; Frenk & Trinitapoli, 2013; Hernández, Burwell, & Smith, 2007; Smith, Simmons, & Mayer, 2005; Tesoriero et al., 2000; Williams et al., 2015); the race or ethnicity of the congregation (Frenk & Trinitapoli, 2013; Fulton, 2011; Szaflarski et al., 2013; Williams et al., 2015); and being engaged in external collaborations (Chin, Mantell, Weiss, Bhagavan & Luo, 2005; Williams et al., 2015). Further, in some cases, congregations that are engaged in service or community work and health programming may be more likely to offer various types of HIV activities (Szaflarski et al., 2013). On the other hand, HIV-related stigma associated with male-to-male sex, substance use, and extramarital sex may also make congregations reluctant to address HIV (Tesoriero et al., 2000; Chin, Mantell, Weiss, Bhagavan & Luo, 2005; Leong, 2006; Thomas et al., 1994; Valentine, 2008; Alder et al., 2007). In addition, Williams and colleagues (2015) found that the factors associated with congregational HIV activities differed by size of congregation with only the existence of a statement welcoming gay persons associated with HIV activities in congregations of all size categories.

One gap in the literature on congregational involvement in HIV activities is that much of the current research focuses on congregational HIV prevention activities (Coleman, Lindley, Annang, Saunders, & Gaddist, 2012; Williams, Palar & Derose, 2011; Francis & Liverpool, 2009; Obong'o, Pichon, Powell, & Williams, 2016; Tesoriero et al., 2000). But in-depth, case study research conducted by Derose and colleagues (Derose et al., 2011) has identified a continuum of activities that congregations have implemented, including: care and support activities such as pastoral care or support of other organizations serving people with HIV; awareness and advocacy such as congregational members participating in an AIDS Walk; and prevention and education activities such as HIV education provided as part of a workshop (Derose et al., 2011). Congregations' HIV activities have been explored through congregational case studies (Derose, Mendel, Palar, Kanouse, Bluthenthal, Werber, Corbin et al., 2011), and recent research on factors associated with congregational HIV counseling, testing, and education/prevention activities among congregations in Cincinnati, OH, further

illustrate the pathways through which congregations address these activities (Szaflarski et al., 2013). However, information about how the factors associated with the existence of congregation-based HIV activities in general are associated with specific types of HIV activities (including but also beyond prevention activities) has not been tested in a national sample. Moreover, understanding of the relative prevalence of the various types of HIV activities identified by Derose and colleagues (2011) has been limited by a lack of data at the national level.

Recent waves of the National Congregations Study (NCS), which is a nationally representative study of religious congregations in the United States, have begun to address this data gap. With the 2006–7 wave, HIV activities were identified by a response to the following question: "Does your congregation currently have any program or activity specifically intended to serve persons with HIV or AIDS?" Although this question was an improvement over the 1998 wave, where the only way to identify HIV activities was through coding open-ended responses to a question about congregational programs in general, it is not clear the extent to which this question identified programs that included HIV prevention and education activities, care and support activities, or awareness and advocacy activities.

To gain more specificity and a better understanding of congregational HIV activities, the authors of this study translated earlier qualitative findings into specific items that were included in the latest wave (2012) of the NCS. These new items allow for a much more nuanced analysis of the types of HIV activities that congregations conduct and the factors associated with these activities by distinguishing among activities that support people living with HIV (PLWH), those that prevent HIV transmission (including testing), and those that raise awareness about HIV in the broader community. Another item asks about financial or in-kind donations to other organizations addressing HIV. Thus, this study aimed to examine the prevalence of these various types of HIV activities and to assess whether there are systematic differences in predictors of these different types of activities.

This study draws on frameworks developed by Derose and colleagues (Derose et al., 2010) and Williams and colleagues (Williams et al., 2015; Williams, Palar, & Derose, 2011) as well as findings about the factors that mediate congregational involvement in HIV identified in several other studies (Tesoriero et al., 2000; Chaves & Tsitsos, 2001; Frenk & Trinitapolit 2013; Bluthenthal, Palar, Mendal, Kanouse, Corbin and Derose 2012; Szaflarski et al., 2013) to conceptualize why and how congregations implement HIV prevention, care, and advocacy activities. Specifically, this study identifies four domains or sets of characteristics that may predict how congregations address HIV in their communities:

1. **Congregational composition/leadership characteristics and community context** encompasses congregational norms and beliefs, including specific attitudes about whether congregation-based HIV activities are needed (Chin, Mantell, Weiss, Bhagavan & Luo, 2005; Derose et al., 2010; Hicks et al., 2005), as well as congregational and community demographic and health characteristics that may inform these attitudes. This domain also encompasses congregational leadership characteristics such as pastor education, which is thought to be associated with HIV activities in general.
2. **Congregational doctrine and policy** includes a congregation's theological and political orientations (i.e., conservative, liberal). These orientations can affect whether the congregation engages in any type of social service or health activities and how the congregation might address HIV. Doctrine and policy may also affect congregational attitudes toward persons who are at risk for HIV or who have the disease. Stigma is particularly important; as Chin and colleagues (Chin, Mantell, Weiss, Bhagavan & Luo, 2005) note, religious organizations often experience a tension between wanting to address HIV and struggling with their beliefs about the morality of homosexuality, drug use, and the disease itself.
3. **Congregational resources** may determine the extent to which congregations can get engaged in these activities (Nohria & Gulati, 1996; Rogers, Doino-Ingersoll, Hayes-Cozier, & Weisfuse, 1996; R. H. Rubin, Billingsley, & Caldwell, 1994; Tesoriero et al., 2000; Thomas et al., 1994; Tsitsos, 2003; Szaflarski et al., 2013). For example, congregations with few resources may be less likely to engage in costlier activities such as donating to other organizations or coordinating more complicated information campaigns.
4. **External engagement of the congregation** describes how congregations may develop relationships with other organizations and how these interactions affect the development of HIV activities. External organizations provide resources and information to increase capacity for implementation. Once again, it is not clear whether externally-reaching congregations are more likely to engage in certain types of congregational HIV activities such as donating to other organizations or raising awareness about HIV.

This study tests whether there is an association between the variables in each of these domains with the existence of any type of HIV activity and the four different types of HIV activities specifically. Clarifying how predictors of specific types of HIV activities differ from one another may provide insights into how congregations choose among potential HIV prevention

and care strategies. Further, this information may help public health and social service agencies identify specific types of congregations to engage or the types of activities on which to focus.

Methods

Sample

Data are drawn from the 2012 wave of the NCS (Chaves, Anderson, & Eagle, 2014; Chaves & Anderson, 2014), a nationally representative survey of congregations in the United States that collects a broad array of congregation characteristics, including data on congregants, congregation resources, and detailed information on congregation activities. Data were collected from key informants at 1,331 congregations; 87% of congregations that were contacted agreed to participate. To control for community-level factors in these analyses, data on county-level health status (measured as a composite of mortality and morbidity) from the 2012 Robert Wood Johnson Foundation (RWJF) County Health Rankings (Community Health Rankings, 2017) and 2010 HIV rate from AIDSVu, a compilation of statistics completed by the Rollins School of Public Health at Emory University (AIDSVu (www.aidsdvu.org)) were merged.

Measures

Outcome variables

Four items measuring specific types of HIV-related activities that congregations engaged in within the past 12 months were developed based on earlier qualitative research (Derose et al., 2011). The response options for each were *yes* or *no*:

- Within the past 12 months, have there been any groups or meetings or classes or events specifically focused on . . .
  - Providing support, such as food, housing, personal items, or pastoral care to persons living with HIV or AIDS? [Support]
  - Preventing HIV transmission, such as teaching about prevention strategies or promoting HIV testing? [Prevention]
  - Raising awareness about HIV in other ways, such as sponsoring World AIDS Day events or participating in an AIDS walk? [Awareness]
- Within the past 12 months, has your congregation given financial or in-kind donations to an organization whose primary purpose is to help people living with HIV or AIDS, or to prevent HIV transmission? [Donating]

Dichotomous variables were created for congregation involvement in each type of HIV activity. In addition, if a respondent responded *yes* to at least one of these items, the congregation was coded as having "any HIV activity."

Predictor variables

Covariates were divided into the four domains highlighted in the conceptual framework and parallel prior analyses of the 2006–7 NCS data (Williams et al., 2015).

Domain (1) **congregational composition/leadership characteristics and community context**, includes the core set of control variables in the analytic models: whether the congregation is located in an urban census tract, whether its census tract is considered high poverty with greater than 30% of residents living below the federal poverty line, HIV rate of the county, overall health index of the county, level of education of the pastor, proportion of congregants that are over age 60 and percent below age 35; length of time the congregation has existed, an indicator variable designated it as an African-American congregation, and another indicating whether it is a Latino congregation. A congregation may be coded as both an African-American congregation and a Latino congregation. The remaining three domains represent areas of interest to this study.

Domain (2) **congregational resources**, includes annual expenditures, number of staff, number of adult attendees, and whether the congregation has a staff person that dedicates 25% of their time on service programs.

Domain (3) **external engagement**, includes indicator variables for whether the congregation assesses community need, collaborates with other organizations, participates in political activities, and seeks government funding.

Domain (4) **doctrine and policy,** includes indicator variables for whether the congregation is politically conservative, theologically conservative, believes the Bible is inerrant, allows gay members, allows gay leaders, has any openly HIV-positive members and has any openly gay participants.

Domains and variables are shown in Table 1. All variables except the County Health Index (County Health Rankings, 2017) and county HIV rates are included in the NCS dataset. The 2012 RWJF County Health Index was used to measure overall health outcomes in the community of each congregation. This index is a weighted mean of county-level measures of mortality (years of potential life lost before the age of 75) and morbidity (mean self-reported health status, mean number of physically and mentally unhealthy days per month, and percentage of live births with low birth weight). Higher values of the composite indicate worse health. The RWJF algorithm was modified so that each mortality and morbidity measure was standardized against all counties in the United States rather than by state.

Table 1. Summary of predictors by domain.

Domain and variable	Variable type	Definition
Composition and context variables		
Urban tract	Dichotomous	2010 census tract predominately urban
High poverty tract	Dichotomous	At least 30% of people in 2010 census tract below the poverty line
County HIV rate	Continuous	County HIV rate per 1,000 residents in 2010
County health index	Continuous	County health index (higher is worse)
Clergy education	3 levels	Highest level of education of head or senior clergy
Adult participants over age 60	Continuous	Percent of adult participants over 60 years old
Adult participants under age 35	Continuous	Percent of adult participants under 35 years old
Congregational longevity	Continuous	Longevity of congregation in years
African-American congregation	Dichotomous	60% or more of members are African American
Latino congregation	Dichotomous	Any one of: At least 50% of attendees Latino or Hispanic Worship service in Spanish or bilingual English/Spanish in a typical week Worship service attended primarily by Latino or Hispanic people in a typical week
Resource variables		
Annual expenditures	Continuous	Total budget spent in most recent fiscal year, logged in models
Staff resources	Continuous	Number of paid staff (normalized)
Adult attendees	Continuous	Number of adults in congregation (logged in models)
25% FTE on service programs	Dichotomous	Paid employee spent more than 25% of time on service programs in the past 12 months
External engagement variables		
Assesses community need	Dichotomous	Group met to plan or conduct an assessment of community need in the past 12 months
Collaborates	Dichotomous	Collaborates with an external organization on social service projects
Political participation	Dichotomous	Political opportunities relayed during worship in the past 12 months
Seeks government funding	Dichotomous	Congregation applied for grant from government in the past 2 years
Doctrine and policy variables		
Politically conservative	Dichotomous	Politically conservative congregation (response of "More on the conservative side" vs. "Right in the middle" or "More on the liberal side")
Theologically conservative	Dichotomous	Theologically conservative congregation (response of "More on the conservative side" vs. "Right in the middle" or "More on the liberal side")
Bible is inerrant	Dichotomous	Congregation considers the Bible to be the literal and inerrant word of God
Allows gay members	Dichotomous	Congregation allows openly gay couples to be full-fledged members
Allows gay leaders	Dichotomous	Congregation allows openly gay couples to hold volunteer leadership positions
HIV-positive member	Dichotomous	Any regular participant is openly HIV-positive
Any openly gay participants	Dichotomous	Any regular participant is openly gay

The 2010 HIV rate per 1,000 county residents as compiled by AIDSVu was also included with missing data for 10 counties filled in by using contemporaneous state or local surveillance data.

Analysis

The sample was weighted to the attendee level for all analyses. This has been identified in prior analyses as being more appropriate for studies

concerned with the social impact of congregational activity (Chaves, 2004; Wuthnow, 2004). This weight means that the data are viewed from the perspective of attenders at the average congregation (Chaves, Anderson & Eagle, 2014). With respect to congregation HIV activities, the interpretation is relative to the number of church attenders exposed to these activities rather than the number of congregations that support them. Bivariate and multivariate logistic models were used to determine which predictors are associated with having "any HIV activity" and which are associated with each type of HIV activity among all congregations. These analyses controlled for all predictors shown in Table 1.

Because congregations may offer more than one type of HIV activity, it is not adequate to simply compare logistic regression models for each outcome. Rather, these associations are estimated using an alternative-specific conditional logistic model of HIV activity type(s) on predictors. This model estimates odds ratios for each of three outcomes (support activities, awareness activities, donating) relative to the reference outcome, prevention activities. Much of what is known about congregational HIV activities is based on studies in which HIV prevention is the primary outcome of interest (Derose et al., 2011; Francis & Liverpool, 2009; Tesoriero et al., 2000). Initial analyses started with a full model that included all predictors in Table 1, and then selected a reduced set of predictors in a sequential fashion to improve precision in the models. In the first stage, the full model is reduced by retaining only predictors that were significantly predictive of having any HIV activity ($p < .05$) or were significantly or moderately significantly predictive of which type of HIV activity was offered ($p < .20$). In the second stage, all predictors that did not meet the $p < .20$ cutoff were dropped.

Missing values and imputation

Data were multiply imputed using the Imputation by Chained Equations (ICE) package in Stata 13.1 (Royston, 2009). Results from 30 complete imputed datasets were pooled using Rubin combination rules (Rubin, 1987). Item nonresponse diagnostics (i.e., stabilization plots) indicated that the mean and variance estimates for the variables with missing values had stabilized and thus did not contain significant nonresponse bias (Fulton, 2016). Congregations that were not geocoded ($n = 3$) or that were missing information on which types of HIV activities were offered ($n = 22$) were dropped from the analyses. As a result, the analytic dataset contains 1,306 congregations, 98.1% of congregations in the sample.

Table 2. Congregation characteristics, weighted to the attendee level. $N = 1{,}306$.

Variables	Percent
Outcomes	
Any HIV activities	26.5%
Prevention activities	12.3%
Support activities	11.9%
Awareness activities	12.3%
Donating	12.4%
Composition and context variables	
Urban tract	72.5%
High poverty tract	14.6%
County HIV rate (per 1,000)	3.2 (3.6)[a]
County health index	−0.27 (0.67)
Clergy education	
High school or less	11.4%
Some college/BA	18.1%
Graduate degree	70.5%
Adult participants over 60	35.0 (21.4)
Adult participants under 35	27.7 (16.5)
Congregational longevity	77.1 (54.7)
African-American congregation	14.9%
Latino congregation	20.9%
Resource variables	
Median annual expenditures	$402,291
Median full-time paid staff	5.5
Median number of adult attendees	300
25% FTE on service programs	21.7%
External engagement variables	
Assesses community need	67.3%
Collaborates	74.0%
Political participation	23.7%
Seeks government funding	9.1%
Doctrine and policy variables	
Politically conservative	53.3%
Theologically conservative	59.7%
Bible is inerrant	68.7%
Allows gay members	50.6%
Allows gay leaders	26.7%
HIV-positive member	11.6%
Any openly gay participants	31.3%

[a]Standard deviations of continuous variables are listed in parentheses.

Results

Table 2 presents characteristics of congregations in the analytic sample, weighted to the attendee level. There are 26.5% of attendees who attend a congregation that is engaged in at least one type of HIV activity (weighted to the congregation level, 18.6% of congregations are engaged in any type of HIV activity). Engagement levels for each type of HIV activity were approximately equal: 12.3% of attendees were in congregations that offered prevention activities (8.7% of congregations), 11.9% of attendees were in congregations that offered support activities (7.6% of congregations), 12.3% of attendees were in congregations that offered awareness raising activities (7.4% of congregations), and 12.4% of attendees were in congregations that provided donations to another organizations for their HIV activities (7.6% of congregations).

Attendee-level-weighted logistic models of offering any HIV activity and offering each type of HIV activity

Table 3 presents results of weighted bivariate logistic models of having any HIV activity (column 1) and having each type of HIV activity (columns 2–5) among all congregations. The variables with a statistically significant positive relationship with a congregation having any congregational HIV activities (column 1) included being in an urban census track, the county HIV rate, being in an African-American congregation, having greater resources as measured by all of the resource variables, each external engagement variable except collaborating with other organizations, allowing gay congregational members, allowing openly gay persons serve as leaders in the congregation, having an HIV positive person in the congregation, and having openly gap participants. The variables that were negatively associated with a congregation having any HIV activities included having a clergy with some college relative to clergy with a high school education or less, being in a politically or theologically conservative congregation and belief in the Bible as inerrant.

The pattern of relationships between independent and dependent variables differed among the congregational HIV activity types, however, several variables were positively associated with all of the activity types including being in an African-American congregation, annual expenditures, the number of adult attendees, having a staff person with 25% time dedicated to social services, assessing community need, having an openly HIV positive person, and having any openly gay participants. The only variable that was negatively associated with each HIV activity was being in a politically conservative congregation.

Table 4 summarizes weighted logistic models of having any HIV activity (column 1) and having each type of HIV activity (columns 2–5) among all congregations. Several factors were associated with offering an HIV activity in this analysis. Congregations were less likely to engage in HIV activities if senior clergy had some college or a 4-year degree compared to congregation with senior clergy with a high school degree or less ($OR = 0.42$). Politically conservative congregations were also less likely to have an HIV activity ($OR = 0.62$). Factors associated with a greater likelihood of having an HIV activity were: having a predominately African-American congregation ($OR = 2.65$, compared with other congregations), having at least 25% of a staff member's time devoted to service activities ($OR = 2.20$), assessing community need ($OR = 2.11$), political participation ($OR = 1.53$), and having an HIV-positive member ($OR = 2.50$).

The second column of Table 4 shows that predictors of having an HIV prevention activity are similar to predictors of having any HIV activity. Clergy education beyond high school was associated with a lower likelihood

Table 3. Estimated odds ratios from bivariate regression of any HIV activity and each type of HIV activity (prevention, support, awareness, and donation), weighted to the attendee level. $N = 1{,}306$ for all models.

	Any HIV activity	Prevention activity	Support activity	Awareness activity	Donating
Composition and context					
Urban tract	1.99 [1.38,2.87]***	1.68 [0.99,2.85]	2.37 [1.40,4.02]**	2.13 [1.26,3.61]**	2.76 [1.63,4.68]***
High poverty tract	1.26 [0.84,1.90]	1.89 [1.15,3.11]*	1.41 [0.86,2.31]	1.33 [0.78,2.27]	0.89 [0.50,1.56]
County HIV rate	1.09 [1.04,1.14]***	1.07 [1.03,1.12]***	1.07 [1.03,1.12]***	1.09 [1.05,1.14]***	1.04 [1.00,1.08]
County health index	1.02 [0.83,1.26]	1.34 [1.02,1.77]*	1.01 [0.75,1.35]	0.96 [0.73,1.28]	0.87 [0.64,1.18]
Clergy education					
High school or less [ref]	1.00	1.00	1.00	1.00	1.00
Some college/BA	0.54 [0.29,0.99]*	0.35 [0.17,0.73]**	1.09 [0.45,2.63]	0.75 [0.30,1.89]	0.96 [0.38,2.40]
Graduate degree	1.24 [0.76,2.03]	0.57 [0.32,1.02]	1.56 [0.75,3.26]	1.57 [0.72,3.42]	1.89 [0.90,3.99]
Adult participants over 60	1.00 [0.99,1.00]	0.99 [0.98,1.00]	0.99 [0.98,1.00]*	1.00 [0.99,1.01]	1.00 [0.99,1.01]
Adult participants under 35	1.00 [1.00,1.01]	1.01 [1.00,1.02]*	1.01 [1.00,1.02]*	1.00 [0.99,1.01]	1.00 [0.99,1.01]
Congregational longevity	1.00 [1.00,1.00]	1.00 [1.00,1.00]	1.00 [1.00,1.01]	1.00 [1.00,1.00]	1.00 [1.00,1.00]
African-American	2.50 [1.71,3.66]***	5.25 [3.35,8.23]***	2.70 [1.71,4.25]***	3.37 [2.16,5.25]***	2.19 [1.37,3.51]**
Latino	1.38 [0.95,2.01]	1.53 [0.93,2.50]	1.93 [1.19,3.13]**	1.09 [0.66,1.78]	1.73 [1.08,2.79]*
Resources					
Annual expenditures (logged)	1.27 [1.13,1.42]***	1.21 [1.04,1.42]*	1.37 [1.16,1.63]***	1.18 [1.04,1.33]**	1.38 [1.17,1.64]***
Staff resources (normalized)	1.38 [1.19,1.60]***	1.24 [1.05,1.46]*	1.45 [1.26,1.66]***	1.08 [0.95,1.23]	1.39 [1.20,1.62]***
Adult attendees (logged)	1.34 [1.20,1.49]***	1.26 [1.08,1.46]**	1.50 [1.26,1.77]***	1.26 [1.10, 1.44]**	1.48 [1.27,1.73]***
25% FTE on service programs	3.23 [2.26,4.64]***	3.51 [2.24,5.52]***	3.57 [2.30,5.54]***	3.07 [2.00,4.73]***	3.03 [1.94,4.72]***
External engagement					
Assesses community need	2.77 [1.93,3.98]***	3.18 [1.80,5.64]***	3.34 [1.95,5.70]***	2.07 [1.26,3.39]**	2.20 [1.32,3.67]**
Collaborates	1.42 [0.99,2.05]	1.44 [0.87,2.39]	1.02 [0.64,1.62]	1.38 [0.86,2.22]	1.73 [1.07,2.78]*
Political participation	2.13 [1.52,2.99]***	1.95 [1.25,3.04]**	1.53 [0.99,2.37]	2.87 [1.89,4.35]***	1.84 [1.20,2.81]**
Seeks government funding	1.75 [1.07,2.86]*	2.02 [1.15,3.55]*	1.97 [1.08,3.59]*	1.68 [0.93,3.03]	1.89 [1.05,3.40]*
Doctrine and policy					
Politically conservative	0.41 [0.30,0.57]***	0.55 [0.35,0.85]**	0.49 [0.31,0.77]**	0.25 [0.15,0.40]***	0.48 [0.31,0.75]**
Theologically conservative	0.49 [0.36,0.67]***	0.74 [0.49,1.12]	0.59 [0.39,0.89]*	0.34 [0.22,0.51]***	0.46 [0.30,0.70]***
Bible is inerrant	0.70 [0.51,0.97]*	1.39 [0.86,2.23]	1.06 [0.69,1.65]	0.73 [0.48,1.10]	0.67 [0.44,1.02]
Allows gay members	1.88 [1.38,2.56]***	1.46 [0.96,2.22]	2.27 [1.49,3.44]***	2.12 [1.39,3.23]***	2.28 [1.51,3.44]***
Allows gay leaders	1.98 [1.43,2.73]***	0.95 [0.60,1.50]	1.85 [1.21,2.83]**	2.21 [1.47,3.32]***	2.05 [1.35,3.12]***
Has openly HIV-positive member	4.82 [3.10,7.49]***	4.09 [2.44,6.85]***	7.05 [4.32,11.49]***	4.28 [2.65,6.91]***	4.12 [2.49,6.82]***
Any openly gay participants	2.34 [1.68,3.24]***	1.63 [1.05,2.51]*	2.99 [1.94,4.60]***	3.13 [2.07,4.73]***	2.53 [1.66,3.86]***

*$p < .05$,
**$p < .01$,
***$p < .001$.

Table 4. Estimated odds ratios from multivariate regression of any HIV activity and each type of HIV activity (prevention, support, awareness, and donation), weighted to the attendee level. $N = 1{,}306$ for all models.

	Any HIV activity	Prevention activity	Support activity	Awareness activity	Donating
Composition and context					
Urban tract	0.95 [0.57,1.58]	0.84 [0.37,1.90]	0.89 [0.46,1.72]	0.88 [0.46,1.70]	1.38 [0.74,2.57]
High poverty tract	1.09 [0.66,1.81]	1.26 [0.63,2.49]	1.18 [0.63,2.22]	1.02 [0.53,1.96]	0.74 [0.37,1.48]
County HIV rate	1.04 [0.99,1.09]	1.02 [0.96,1.08]	1.02 [0.96,1.08]	1.04 [0.99,1.11]	0.96 [0.90,1.03]
County health index	1.07 [0.79,1.45]	1.20 [0.79,1.83]	0.96 [0.63,1.45]	0.97 [0.68,1.39]	1.06 [0.73,1.56]
Clergy education					
High school or less [ref]	1.00	1.00	1.00	1.00	1.00
Some college/BA	0.42 [0.21,0.85]*	0.24 [0.10,0.57]**	1.10 [0.43,2.82]	0.72 [0.27,1.91]	0.91 [0.34,2.40]
Graduate degree	0.72 [0.40,1.31]	0.43 [0.21,0.88]*	1.03 [0.47,2.29]	1.23 [0.52,2.92]	1.01 [0.46,2.21]
Adult participants over 60	1.00 [0.99,1.01]	1.00 [0.99,1.02]	1.00 [0.99,1.01]	1.00 [0.98,1.01]	1.00 [0.99,1.02]
Adult participants under 35	1.01 [0.99,1.02]	1.01 [0.99,1.02]	1.01 [1.00,1.03]	1.00 [0.98,1.01]	1.00 [0.98,1.02]
Congregational longevity	1.00 [1.00,1.00]	1.00 [0.99,1.01]	1.00 [1.00,1.01]	1.00 [0.99,1.00]	1.00 [1.00,1.00]
African-American	2.65 [1.59,4.43]***	5.79 [2.96,11.34]***	2.81 [1.49,5.30]**	3.66 [1.92,6.97]***	3.46 [1.83,6.55]***
Latino	0.95 [0.58,1.54]	1.42 [0.74,2.72]	1.18 [0.66,2.10]	0.67 [0.36,1.26]	1.34 [0.76,2.35]
Resources					
Annual expenditures (logged)	1.03 [0.90,1.18]	1.14 [0.90,1.44]	1.02 [0.86,1.22]	1.01 [0.80,1.26]	1.02 [0.84,1.24]
Staff resources (normalized)	1.08 [0.89,1.31]	0.94 [0.76,1.15]	1.16 [0.93,1.43]	0.75 [0.57,0.97]*	1.12 [0.93,1.36]
Adult attendees (logged)	1.19 [0.99,1.44]	1.12 [0.86,1.45]	1.22 [0.96,1.54]	1.33 [1.03,1.73]*	1.25 [1.00,1.57]*
25% FTE on service programs	2.20 [1.47,3.27]***	2.61 [1.57,4.34]***	2.05 [1.26,3.35]**	2.54 [1.53,4.22]***	1.84 [1.16,2.93]*
External engagement					
Assesses community need	2.11 [1.39,3.20]***	2.41 [1.25,4.65]**	2.16 [1.18,3.93]*	1.47 [0.84,2.56]	1.39 [0.80,2.42]
Collaborates	1.31 [0.84,2.04]	1.78 [0.89,3.56]	0.91 [0.52,1.58]	1.40 [0.80,2.45]	1.51 [0.89,2.56]
Political participation	1.53 [1.02,2.31]*	1.52 [0.89,2.59]	1.01 [0.62,1.64]	2.14 [1.29,3.53]**	1.27 [0.79,2.05]
Seeks government funding	0.89 [0.50,1.60]	1.09 [0.58,2.03]	1.24 [0.63,2.41]	0.78 [0.39,1.56]	1.10 [0.56,2.14]
Doctrine and policy					
Politically conservative	0.62 [0.41,0.92]*	0.75 [0.42,1.32]	0.80 [0.46,1.36]	0.43 [0.25,0.75]**	0.82 [0.49,1.37]
Theologically conservative	0.97 [0.64,1.47]	1.22 [0.69,2.17]	1.07 [0.63,1.82]	0.79 [0.46,1.35]	0.78 [0.46,1.31]
Bible is inerrant	0.89 [0.56,1.40]	0.96 [0.50,1.84]	1.40 [0.77,2.56]	1.10 [0.61,2.01]	0.99 [0.57,1.71]
Allows gay members	1.08 [0.68,1.71]	1.29 [0.70,2.39]	1.40 [0.75,2.58]	0.94 [0.48,1.82]	1.30 [0.71,2.38]
Allows gay leaders	1.47 [0.87,2.47]	0.80 [0.39,1.63]	1.76 [0.92,3.35]	1.34 [0.66,2.71]	1.51 [0.80,2.87]
Has openly HIV-positive member	2.50 [1.53,4.11]***	2.19 [1.25,3.83]**	3.13 [1.79,5.46]***	2.20 [1.21,4.02]**	1.92 [1.11,3.33]*
Any openly gay participants	1.00 [0.63,1.59]	0.99 [0.52,1.90]	1.37 [0.78,2.39]	1.58 [0.86,2.90]	1.08 [0.59,1.99]

*$p < .05$,
**$p < .01$,
***$p < .001$.

of offering a prevention activity ($OR = 0.24$ for some college or a 4-year degree and 0.43 for a graduate degree, both compared with high school or less). Congregations were more likely to offer prevention activities if they were predominately African American ($OR = 5.79$), devoted at least 25% of a staff member's time service activities ($OR = 2.61$), assessed community need ($OR = 2.41$), or had an HIV-positive member ($OR = 2.19$).

Associations between predictors and having any HIV activity (column 1) versus having specific types of HIV activities (columns 2–5) were similar, but differed for several variables. In contrast with prevention activities, clergy education beyond high school was not a significant predictor of the other three types of activities. African-American congregations were more likely to engage in all three other types of programming ($OR = 2.81$ for support, 3.66 for awareness, and 3.46 for donation). Assessing community need was a significant predictor of support ($OR = 2.16$) activities, but not awareness activities or donating. Two significant predictors overall, political participation and politically conservative, were only significant predictors of one type of activity, awareness (OR for political participation =2.14, OR for politically conservative =0.43).

Several predictor variables were not found to have a significant association with any HIV activity. These included location in an urban or high poverty census tract, county HIV rate or health index, average age of congregants, longevity of the congregation, being a Latino congregation, annual expenditures, engaging in collaborations, seeking government funding, being theologically conservative, belief that the bible is inerrant, allowing gay members or leaders, and having openly gay participants.

Alternative-specific conditional logistic model

Table 5 summarizes the reduced alternative specific conditional logistic model of which type(s) of activities are offered among congregations offering any HIV activity. The odds of having activities for support, awareness, and donation are each compared to the reference outcome group, prevention. The fourth column shows joint tests of equality across all outcome groups.

Clergy education beyond high school is associated with higher odds of support, awareness, and donation relative to prevention. Predominately African-American congregations are more likely to engage in prevention activities compared with each of the other three activity types ($OR = 0.18$ for support, 0.29 for awareness, and 0.19 for donation). Under congregational resources, having more staff is associated with higher odds of donation compared with prevention programming ($OR = 1.27$, for a 1 standard deviation increase in number of staff). Politically conservative congregations are less likely to engage in awareness than prevention of HIV ($OR = 0.30$).

Table 5. Estimated odds ratios from alternative-specific conditional logistic regression for type of HIV activity among congregations with any activity, weighted to the attendee level. $N = 344$ congregations.

	Support[a]	Awareness[a]	Donating[a]	Joint p-value, $df = 3$
Composition and context				
County HIV rate	0.98 [0.89,1.08]	1.03 [0.94,1.13]	0.92 [0.82,1.03]	0.1939
Clergy education				
High school or less [ref]				
Some college/BA	11.98 [1.85,77.49]**	4.69 [0.86,25.55]	10.23 [1.55,67.43]*	0.0463
Graduate degree	4.86 [1.00,23.57]*	5.44 [1.33,22.18]*	6.17 [1.36,27.99]*	0.0512
Adult participants <35	1.00 [0.97,1.03]	0.99 [0.97,1.01]	0.97 [0.94,1.01]	0.0797
African-American	0.18 [0.06,0.49]***	0.29 [0.11,0.80]*	0.19 [0.06,0.60]**	0.0055
Resources				
Staff resources (normalized)	1.27 [0.93,1.74]	0.77 [0.58,1.02]	1.27 [1.00,1.62]*	0.0033
External Engagement				
Collaborates	0.28 [0.07,1.04]	0.73 [0.22,2.44]	0.70 [0.19,2.55]	0.1106
Doctrine and Policy				
Politically conservative	0.57 [0.23,1.44]	0.30 [0.13,0.72]**	0.58 [0.25,1.37]	0.0621
HIV-positive member	2.42 [0.93,6.32]	1.62 [0.60,4.37]	0.94 [0.32,2.73]	0.1229

*$p < .05$,
**$p < .01$,
***$p < .001$.
[a]Each activity type is compared to the reference outcome category, Prevention.

Relative to prevention, there was no evidence of an association between support, awareness, and donation and the following predictors: county HIV rate, proportion of adult participants aged less than 35, engaging in collaborations, or having an HIV positive member.

Discussion

This study examined specific types of HIV activities implemented by a representative sample of U.S. congregations and the congregational and community characteristics that are associated with each type of congregational HIV activity. It found that the prevalence of congregation-based HIV activities nationally is substantially higher than that found in the 2006–7 wave (26.5% of attendees in a congregation with some type of HIV activity in 2012 vs. 19.6% in a congregation with a program that supports people with HIV in 2006–7) (Williams et al., 2015). It is not clear, however, what portion of this increase is the result of more congregations addressing HIV and what portion is the result of greater comprehensiveness in the NCS items used to ascertain involvement in HIV activities. The study also found that congregations have a similar likelihood of engaging in each of the four types of HIV activities, with a range of 7.4–8.7% of congregations nationally for each type.

There were several factors that were consistently positively associated with all three types of HIV activities: being a predominantly African-American congregation, having a staff person with at least 25% time dedicated to supporting social service activities, and having an openly HIV positive person in the congregation. These factors are consistent with the prior

literature in HIV programs in general or prevention in particular (Fulton, 2011; Williams et al., 2015; Szaflarski et al., 2013). African-American congregations have a long history in social service engagement (Eric & Mamiya, 1990) and are more likely than congregations of other racial-ethnic compositions to engage in social service activities (Brown, 2008), and health activities (Brown & Adamczyk, 2009) including HIV (Szaflarski, et al., 2013; Williams et al., 2015). In addition, research on the NCS has found that having a staff person with dedicated time to support social services increases the capacity at the congregation for all activities, including HIV (Fulton, 2016). Moreover, having an openly HIV positive person in the congregation likely raises the profile of HIV as a condition to address within the congregation (Frenk & Trinitapoli, 2013).

Despite these similarities, there were also subtle differences in the factors associated with engagement in each type of HIV activity. For example, prior research suggests that clergy education is positively associated with the existence of HIV activities in their congregations (Frenk & Trinitapoli, 2013). However, in the current study, the multivariate logistic regressions of the predictors of the involvement in any HIV activity and specifically HIV prevention activities found a negative association. Upon further analysis, the alternative-specific conditional logistic model highlighted that, relative to prevention activities, clergy education is positively associated with providing support to people with HIV, raising awareness about HIV and making donations for HIV activities to other organizations. This result suggests on the one hand that the level of clergy education is an important predictor, but operates differently for prevention versus other types of HIV activities. A possible reason for this could be related to the types of prevention activities that are common at congregations. Tesoriero and colleagues (Tesoriero et al., 2000) found that congregations engaged in HIV activities were least likely to engage in prevention activities such as referrals for HIV testing, information about needles/syringes, and condom distribution. On the other hand, they were most likely to distribute literature and HIV/AIDS education. However, the content of these educational activities is not clear. Observations from earlier case studies (derose et al., 2011) found that, for many congregations, abstinence was the most common prevention activity, and that more educated clergy were less likely to emphasize abstinence over other prevention strategies. The fact that abstinence is a common prevention activity in congregations may also explain why politically conservative congregations were more likely to engage in prevention relative to awareness raising and advocacy. Consistent with prior research, this study found that predominantly African-American congregations were more likely than other congregations to engage in each type of HIV activity (Williams et al., 2015; Szaflarski et al., 2013). But relative to HIV prevention activities, they

are less likely to engage in all other types of HIV activities. This confirms results identified in case studies (Derose et al., 2011) of congregational HIV activities among African-American congregations and may be related to the timing of involvement in the HIV epidemic among these institutions. Early on, congregations tended to provide care and support (e.g., assistance with activities of daily living, spiritual support around death and dying, etc.) directly to persons with HIV (Shelp, DuBose, & Sunderland, 1990; Shelp,1992; Beckley and Koch 2002; Cunningham, Kerrigan, McNeely, & Ellen, 2011). But congregations that got involved after the development of antiretroviral therapy (ART), which extended life and reduced morbidity for many HIV positive persons (Oguntibeju, 2012), may have seen less of a need for care and support. If African-American congregations tended to become more involved during this later period of the epidemic, this may explain why they are more likely to engage in prevention activities than other types. These analyses also found that congregations with greater resources (as measured by having a staff person with at least 25% of their time dedicated to social service projects) were more likely to provide donations to other organizations to support their HIV activities than to engage in prevention. Having such staff could increase contact with outside organizations, making the congregation leadership aware of opportunities for partnership and/or providing donations to such organizations for their HIV activities. Such staff may also facilitate fundraising within the congregation for these types of donations.

One problem in interpreting these results is that despite the additional information about the different types of HIV activities that congregations offer, some of the broad categories still contain a wide range of potential activities. HIV prevention is particularly problematic. Derose and colleagues' (Derose et al., 2011) case studies identified a range of activities that are labeled as prevention despite their different approaches, including HIV education through workshops, distribution of HIV educational materials, abstinence, health fairs, and HIV testing and discussion of condoms. In addition, these case studies identified that the number of congregations engaged in abstinence activities (8 of 14) was similar to the number engaged in HIV testing and discussions about condoms (6 of 14). The factors that predict involvement in these different prevention approaches may or may not be similar. For example, these analyses found that conservative congregations and predominantly African-American congregations were less likely to engage in other types of HIV activities relative to prevention, but these data don't specify what their prevention activities involved. Additional research could explore the different types of HIV prevention strategies congregations use and how these strategies are associated with various congregational factors. These analyses also found that clergy

education was negatively related to prevention. It is not clear whether this is a new finding and that more educated clergy are less likely to pastor congregations with HIV prevention activities, or if it's possible that more educated pastors choose other types of activities, either to avoid controversy within the congregation or because they feel these other types of activities (e.g., supporting people with HIV) are more appropriate or needed. In light of these unknowns, additional research is needed to better understand the prevalence and predictors of different congregational HIV prevention activities at a national level. Also, given the important disparities around HIV that exist in the African-American community, future analyses should also focus on understanding at a national level the factors that predict African-American congregations' involvement in different HIV activities.

These analyses are limited by several factors. Causality cannot be inferred for any relationships that are found, since the data are cross-sectional. Omitted variable bias may also be a problem. For example, these analyses are only able to measure fairly crude indicators related to stigma, such as allowing openly gay persons to be members; this does not allow for refined measurement of the full continuum of attitudes on which congregations vary (Bluthenthal et al., 2012). For example, any new analyses of the impact of congregational factors associated with sponsoring HIV activities should measure stigma more directly. As Bluthenthal and colleagues (2012) found, HIV prevention activities can occur even when stigmatizing attitudes are present. Thus, it is important to understand better how stigma and other barriers impact HIV activities. Also, not all HIV activities are well planned or executed and there is no information on the quality of these activities. If a large portion of congregational efforts are ineffective, identifying ways to encourage greater development in this area would not be an efficient way to pursue public health goals.

Moreover, Szaflarski and colleagues (Szaflarski et al., 2013) found that the pattern of factors that contribute to congregational decisions to engage in HIV activities differs by the denomination and polity of the congregation. Although the current study controls for several congregational characteristics that are related to doctrine and policy, denomination was not included in the analysis since it is highly correlated with congregation race. Thus, caution should be taken in interpreting the extent to which these results can be used to improve congregational HIV activities without consideration to factors such as denomination affiliation.

Conclusions

Despite the limitations described above, these analyses are original in being the first to analyze a nationally representative sample of congregations to quantify the various types of HIV activities that exist in congregations and the

predictors of these activities. Although prior literature about congregational HIV interventions tended to focus on HIV activities in general, these findings suggest that there is variability in the factors that predict each type of activity.

This better understanding of the prevalence of specific types of activities and the characteristics associated with them helps inform policy and practice related to community-based HIV prevention and care by identifying factors that facilitate congregational involvement in each specific activity. In doing so, this study builds on previous findings (Szaflarski et al., 2013), which identified congregational HIV activities depend on the interaction of congregation theology/polity and other factors such as ongoing work in social and health services, having paid staff, the racial composition of the congregation, and location in central cities versus suburbs. This study also contributes to research on building effective partnerships with congregations around HIV activities that is of great interest to health and social service professionals (Abara, Coleman, Fairchild, Gaddist, & White 2015; Szaflarski 2013; Werber, Derose, Dominguez, & Mata 2012). Such partnerships can help put into action the national call to incorporate faith communities in HIV prevention and care (NHAS 2015). But to be successful, social service providers need information on the factors that facilitate or pose as barriers to congregational HIV activities. Over time, the HIV epidemic and resultant prevention and treatment modalities have continued to change, and current prevention efforts focus much more on testing and early treatment to stem new infections––or "treatment as prevention" (Cohen et al., 2011; Cohen et al., 2013; Coleman et al., 2012; Obong'o et al., 2016). Many congregations may find it easier to promote HIV testing and early treatment rather than prevention strategies such as condom use and needle exchange. Such an approach might involve congregations not only serving as trusted venues for rapid HIV testing, but also addressing barriers to care and adherence to treatment such as lack of health insurance, food insecurity, substance use, and housing, which all require some degree of partnership with health and social service providers.

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