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Involving immigrant religious organizations in HIV/AIDS prevention: The role of bonding and bridging social capital

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Abstract

Immigrant religious organizations in the United States are uniquely positioned to address critical issues beyond religion because of their moral, social and cultural prominence in community life. Increasingly, religious organizations have taken on a leadership role around health issues such as decreasing HIV/AIDS stigma and misinformation. However, there are barriers for some religious leaders and organizations in adopting new health programs, especially if the issue is seen as controversial. Our study examines how social network structures among religious members influence organizational acceptance of new information or controversial ideas, like HIV/AIDS. Using social network analysis methods on data from 2841 contacts in 20 immigrant Chinese Buddhist temples and Christian churches in New York City, we tested whether an immigrant religious organization's likelihood of being involved in HIV/AIDS activities was associated with the presence of bonding or bridging social capital. These two forms of social capital have been found to mediate the levels of exposure and openness to new ideas. We found HIV/AIDS-involved religious organizations were more likely to have lower levels of bonding social capital as indicated by members having fewer ties and fewer demographic attributes in common. We also found HIV/AIDS-involved religious organizations were more likely to have higher levels of bridging social capital as indicated by members having significantly more ties to people outside of their organization. Our study highlights the importance of looking beyond religion type and leadership attributes to social network structures among members in order to better explain organization-level receptiveness to HIV/AIDS involvement.

Keywords

United States; HIV/AIDS; Social Capital; Social Network Analysis; Religion; Immigrants Organizations; Chinese; Asians

Religious organizations are increasingly being recognized as important places to discuss HIV/AIDS prevention and decrease HIV/AIDS stigma (The White House, 2016; US Department of Health and Human Services, 2016). Despite this increased attention, little is known about why some religious organizations show willingness to get involved in HIV/AIDS issues, while others continue to be reluctant. To address this problem, previous studies have focused on examining the effects of religious doctrine (Lujan and Campbell, 2006; Sutton and Parks, 2013), individual leadership attitudes (Tesoriero et al., 2000), organizational mission (Chin et al., 2011; Derose et al., 2011) and member attitudes and beliefs (Bluthenthal et al., 2012; Chin et al., 2008) on religious organizational decisions regarding HIV/AIDS. To date, few studies have focused on immigrant communities and none have examined how the social network ties among religious members are associated with whether a religious organization decides to get involved in HIV/AIDS activities.

The social ties that form among members of religious organizations and non-members in the community or neighborhood contribute to the development of social capital. Social capital informs a religious organization's approach to secular and civic activities, including involvement in HIV/AIDS activities (Chin et al., 2011; Mock, 1992; Roozen et al., 1984; Smidt, 2003). We focus on two types of social capital, bonding and bridging, that have been found to mediate the levels of exposure and openness to new ideas (Putnam, 2000; Rogers, 2003). Bonding social capital tends to develop among people who have a lot in common, while bridging social capital tends to develop among people who are more dissimilar.

While some features of religious organizations may be very similar across religions, such as emphasizing norms of compassion, other features may differ greatly within and across religions, such as membership demographics, structures of authority and neighborhood contexts. Thus, religious organizations, even within the same religion or denomination, may foster very different types of social capital, resulting in variation in organizational missions and how they engage with secular issues such as health and HIV/AIDS issues (Chin et al., 2011, 2007b; Roozen et al., 1984; Smidt, 2003).

For immigrants adjusting to a new society, it may be difficult to be receptive to new health information and to differentiate between what is beneficial or detrimental to their health. Receptiveness to accurate health information is not always straightforward. Some health topics may be more consistently aligned with cultural and religious beliefs such as those encouraging the consumption of healthier foods. Other topics may conflict with existing beliefs and be less readily accepted, such as contraception, immunizations, treatments for mental health issues and HIV/AIDS prevention (Chaze et al., 2015; Gerend et al., 2013; Lowe and Moore, 2014; Villatoro et al., 2014). When these conflicts occur, many immigrants turn to trusted community members and organizations for guidance. This places immigrant religious organizations in a key position to either facilitate or impede the acceptance of important new information needed to decrease HIV/AIDS risk and stigma (Abraham, 2000; Kang et al., 2013). Among Asian immigrant religious organizations, health promotion activities such as health fairs and inclusion of health messages in religious sermons have increased (Cadge and Ecklund, 2007; Chin et al., 2008). Yet, few have actively addressed issues of HIV/AIDS risk and stigma despite increases in annual HIV/AIDS diagnosis rates among Asians and Pacific Islanders in the U.S. (Adih et al., 2011).

The combination of high rates of religious association (Chin et al., 2011, 2008, 2005), high rates of social and behavioral risk factors (Bhattacharya, 2004; Chin et al., 2007b; Zaidi et al., 2005) and low rates of HIV/AIDS awareness (Chin et al., 2007b, 2005; Kang et al., 2003, 2000), calls attention to the need to find new avenues and methods to increase HIV/AIDS prevention efforts in Asian immigrant communities. By using social network data from 20 Chinese immigrant religious organizations (10 Buddhist temples and 10 Christian churches) in New York City, we pose the following research question: What types of social capital, as indicated by social network measures, are associated with involvement in HIV/AIDS activities among immigrant religious organizations? This analysis aims to highlight the social network structures of members as an important factor in religious organizational involvement in HIV/AIDS programs, and to give insight into additional access points for collaboration between public health and religious organizations in immigrant communities.

BACKGROUND

HIV/AIDS and Chinese Immigrants in New York City

New York City continues to be one of the main epicenters of HIV/AIDS in the United States. Despite an extensive HIV/AIDS service infrastructure, many immigrants still face significant barriers to accessing HIV/AIDS information and services. These barriers are further exacerbated among the low-income, non-English speaking and undocumented immigrants (Wiewel et al., 2013). Although HIV prevalence among Asians and Pacific Islanders in the U.S. has been relatively low, addressing prevention and stigma remains important because of significant percentage increases in annual HIV/AIDS diagnosis since 2011 (Adih et al., 2011; Chin et al., 2007a). In New York City, foreign-born cases among Asians and Pacific Islanders comprise the majority (72%) of cumulative AIDS cases and they were the only racial and ethnic group to not have a statistically significant decrease in the number of new HIV diagnosis from 2011-2014. Additionally, along with Blacks, Asians and Pacific Islanders had the lowest short-term survival after diagnosis from 2009-2013, suggesting delays in diagnosis and barriers to care (HIV Epidemiology and Field Services Program, 2015).

The Chinese are the largest Asian ethnic group in New York City and the second largest immigrant group in New York City overall. Seventy-one percent are foreign-born, and over a third recently arrived in 2000 or later (New York City Department of City Planning, 2013). The socioeconomic background of Chinese immigrants widely varies with some immigrating with advanced educational degrees, and others with very low levels of education. Compared to the overall New York City population, the Chinese population has less education, lower English-language skills, lower incomes, and higher working-age and older-adult poverty rates (AAFNY 2013).

There is a dual context of HIV/AIDS risk for Chinese immigrants in the U.S., especially among the less educated, less skilled and undocumented. First, prior to reaching the U.S., they are more likely to be exposed to HIV because many originate from or migrate through parts of mainland China and Southeast Asia with the highest HIV prevalence rates in the region (Wiewel et al., 2015). Among the undocumented, who are more likely to be men migrating without their families, their HIV risk increases en route to the United States via

sexual contact with high risk partners or through drug use (Achkar et al., 2004; Chin et al., 2007a, 2007b; Joint United Nations Programme on HIV/AIDS (UNAIDS), 2013). Second, many face significant environmental and behavioral risk factors after arriving in the United States, such as high rates of poverty, low rates of education, low levels of HIV/AIDS knowledge and testing, limited access to medical care, and high levels of risky behaviors (Bhattacharya, 2004; Chen et al., 2015; Chin et al., 2007a; Kang et al., 2005, 2000; Zaidi et al., 2005). Beyond the individual level, HIV/AIDS stigma among Chinese immigrants remains persistent (Chen et al., 2015; Kang et al., 2005). This stigmatization has consequences that increase HIV/AIDS risk, including delays in HIV testing and care (Bhattacharya, 2004; Kang et al., 2011), marginalization and isolation of individuals living with HIV/AIDS (Chen et al., 2015; Chin et al., 2005), increased mental illness due to stress and a heightened sense of shame (Chin et al., 2007b; Kang et al., 2005), and lost opportunities for prevention education (Kang et al., 2000).

Religion, Immigrants, and Social Capital

Historically, religious organizations have provided immigrants with much more than spiritual and moral guidance. For generations of immigrants, religious organizations have also provided cultural refuge, a wide range of social services, and a sense of community. Their prominence in the community as well as their unique cultural influence and trustworthiness gives religious organizations a distinct leadership role in non-religious issues such as health promotion. Religious organizations are also distinct from political and other forms of community association given their assumed legitimacy, moral imperative and infrastructure to meet a large range of community needs (Guest, 2003; Hirschman, 2004; Putnam, 1995; Putnam and Campbell, 2012; Smidt, 2003). Their multi-faceted role and widespread presence fosters substantial levels of social capital to help immigrants cope with the challenges of acculturation.

Social capital facilitates individual and collective actions that would not be possible in its absence. Some scholars have focused on social capital as an individual-level ability to “secure benefits by virtue of membership in social networks or other social structures” such as organizations (Portes, 1998:6). Others have focused on group-level functions, where social capital is embedded in the structure of relationships (Coleman, 2000; Putnam, 1995). In this paper, social capital is defined as the value generated from the social network ties formed through individual relationships. It is a relational asset that benefits individuals embedded in the network, as well as the entire group. At the group level, social capital collectively structures norms of reciprocity and trustworthiness as well as shapes an organization’s receptiveness to new ideas and information (Coleman, 2000; Lin et al., 2001). In our study, we focus on two types of social capital, bonding and bridging, which have been found to mediate the levels of exposure and openness to new ideas and information (Putnam, 2000; Rogers, 2003)

While social capital can be formed in different types of groups and associations, there are many reasons why the relationship between religious association and social capital among immigrants is unique and merits additional examination. First, religion is one of the most common forms of association in the United States and immigrants are an increasing

proportion of the overall religious-affiliated population. Immigrants are contributing to the rise in religious diversity as well as stemming the decline of Christian affiliation (Pew Forum on Religion & Public Life, 2008).

Second, religious organizations are often the first community institution formed by immigrants, the first voluntary association joined by immigrants upon their arrival, and the most prolific type of community institution established in immigrant enclaves (Hirschman, 2004; Smidt, 2003; Stoll and Wong, 2007). In New York City's Chinese community, religious organizations comprised almost half (42%) of 316 identified community institutions (Chin et al., 2007b, 2005). Immigrants, who often come with limited resources and lack the information to navigate a new country, often turn to the secular services and moral support offered in religious organizations because these resources often cannot be found in the same combination or with the same cultural and linguistic appropriateness in other community institutions or government services (Bankston and Zhou, 2000; Foner and Alba, 2008; Guest, 2003). Not only do immigrants desire to be in association for support and mutual aid, but association through religion also gives immigrant communities a stronger sense of public respectability in the larger society where their immigrant, racial or ethnic status can often constitute a social disadvantage (Hirschman, 2004).

Bonding and Bridging Social Capital

All immigrant religious organizations have great potential to foster social capital, but different types of social capital formation stem from variation in organizational structures, religious values and membership characteristics. Putnam (2000) posits two types of social capital, bonding and bridging, which affect the receptiveness of an organization to new ideas. Bonding social capital tends to bring people within a group closer together through cohesive or dense network ties. It fosters reciprocity and mobilizes solidarity once the group has chosen a direction or purpose. Bridging social capital brings disparate groups of people together, generating links to external resources and broader allegiances and reciprocity beyond the boundaries of an organization. It connects people across social divides of roles, status, identities and beliefs, as well as exposes individuals to new information and diverse beliefs (Gittell and Vidal, 1998; Putnam, 2000; Yuan and Gay, 2006).

As much as bonding social capital brings people closer together, it can also make network members less receptive to new ideas and information because close bonds also foster out-group antagonisms, and people who act against the norm can easily be rejected or reprimanded. For example, strong bonding social capital is what makes immigrant religious organizations so effective in providing refuge and respectability for their members, but it can also isolate immigrants from new information and marginalize members who bring up unpopular ideas like reducing HIV/AIDS stigma. On the other hand, networks with more bridging social capital often have weaker ties and fewer restrictions on diverse ideas. Although there may be fewer barriers in such networks with members being more open to discussing HIV/AIDS, their influence on each other may be more limited because weaker ties do not produce trust, reciprocity and cooperation as quickly (Burt 2005; Granovetter 1973).

While often conceptualized as dichotomous concepts (Kawachi et al., 2004; Kim et al., 2006), some scholars have characterized bonding and bridging social capital as simultaneously present along different dimensions in an organization because there are a variety of ways within an organization for people to form relational ties (Putnam, 2000). Stovel, Golub and Milgrom (2011) posit a concept of organizational grafting to explain how an organization with bridging social capital can also maintain cohesive bonding social capital among its members. Organizational grafting occurs when new activities are framed as fitting within an organization's main purpose. When alternative interactions or transactions are brought under the umbrella of an organization's official mission, the organization and its members are actively forming both bonding and bridging social capital. The grafting of new activities (e.g. health or HIV/AIDS activities) form more bridging social capital on top of unifying activities that create more bonding social capital (e.g. religious activities). This creates a valued exchange that increases organizational commitment among members who appreciate access to secondary resources. Grafting of organizational priorities and activities brings together diverse people who have multiple forms of relationships to each other as well as to the organization. This diversity in relationships influences receptiveness to new or controversial ideas without eroding overall mutual trust or a sense of belonging.

Homophily and Heterophily: Measuring Bonding and Bridging Social Capital

The extent of bonding or bridging social capital in a network is partially produced by members' preference for forming ties with those who are like themselves. People do not make ties with others at random but have individual preferences based on the extent to which others share specific attributes. This tendency to develop ties with similar others, called homophily, creates more bonding social capital. In contrast, heterophily, the tendency to develop ties with people who have different attributes, creates more bridging social capital (Daw et al., 2015; McPherson and Smith-Lovin, 1987; McPherson et al., 2001).

Individual attributes that influence the formation of ties can be further distinguished by status, values and contexts. Ties formed by status describe the tendency to associate with others who have the same or different social status or demographic characteristics. Ties formed by values describe the tendency to associate with others who hold similar or dissimilar beliefs regardless of status (Lazarsfeld and Merton, 1964). While most research on homophily or heterophily has focused on individual characteristics of status or values, only a few studies have examined how contextual factors, such as organizational membership can affect an individual's preferences to form ties (Daw et al., 2015; Glanville et al., 2004; McPherson and Smith-Lovin, 1987). Ties formed by contexts describe the tendency to associate with others who are with the same or different organization or community (e.g. church, neighborhood, workplace). Contextual ties can overcome initial barriers of trust and reciprocity posed by differences in status or values.

Effective immigrant incorporation into a new society entails being supported by similar others, but it also requires being exposed to a broad range of new people and information in order to secure resources and find a sense of belonging in the larger society. In networks with more bridging social capital, people from a wider range of statuses, values or contexts

are more likely to be connected. These heterogeneous ties allow people to be more open to alternative perspectives. However, new ideas may be limited in dissemination power and influence because ties between diverse people tend to take longer to build trust, reciprocity and cooperation.

Our study applies this social capital-based theoretical framework to the social networks of 20 Chinese immigrant religious organizations. We posit that bonding and bridging capital are complementary concepts that can occur together within a network. First, we hypothesize that the immigrant religious organizations in our sample will have similar levels of bonding social capital, regardless of HIV involvement, because they occupy such a unique and central role in their communities and meet such a wide range of everyday needs. Second, we hypothesize that immigrant religious organizations involved in HIV/AIDS activities will be more likely to have bridging social capital because it creates the conditions that support HIV/AIDS involvement, such as exposure of members to new information and openness to discussing new or controversial ideas.

DATA and METHODS

Sample and Data Collection

Our data is from a 6-year study (2007-2013) on Chinese immigrant religious institutions and HIV/AIDS involvement in New York City, funded by the Eunice Kennedy Shriver National Institute of Child Health and Human Development of the U.S. National Institutes of Health (NIH; Award R01HD054303). Study participants provided informed consent in accordance with study procedures, which were approved by the City University of New York – Hunter College Institutional Review Board. The sampling method for this study involved multiple steps to achieve a random sample of organizations and members within organizations. First, two hundred Chinese religious organizations in New York City were identified from published institutional listings, Internet searches and field visits between 2007-2008. We stratified the resulting comprehensive database of religious organizations by religion type (Christian and Buddhist) and randomly selected 83 to complete a brief organizational survey (one leader/representative per organization). Among the 83 selected organizations, we stratified by religion type again and randomly selected 10 Buddhist and 10 Christian organizations for further in-depth study. We had a refusal rate of 41% and 55% respectively to reach our final sample size of 20 organizations. The 20 organizations were located in Manhattan, Brooklyn and Queens.

We focused our recruitment on Christian and Buddhist organizations because those were the religions most often found in our initial organizational census (89.5%), aside from a handful of Taoist and Chinese Popular Religion organizations. Almost all of the Christian churches were either Mainline Protestant and Evangelical denominations. Buddhist denominations included Zen, Pure Land and Mahayana. In our analysis of the data with organizational leaders (noted below), we found many of the Buddhist organizations to have blended doctrines, and after consultation with key informants, we decided to not further disaggregate Buddhist organizations by denomination because they were not clearly differentiated by doctrine. This was not the case among Christian organizations, so we maintained the broad doctrine categories of Mainline Protestant and Evangelical.

Within each of the 20 organizations recruited, we conducted an in-depth interview with the primary organizational leader. For the purposes of this analysis, data from those interviews were used only to establish the organization's religious identification and whether they had been engaged in HIV/AIDS activities.

To collect social network data, all active members at each of the 20 organizations were asked to complete a brief self-administered social network survey (in Chinese or English). Bilingual interviewers made multiple visits to regular religious gatherings at each organization until an average response rate of 44% per organization was achieved, resulting in a sample of 936 people from 20 organizations.

To assess social network contacts, respondents were asked, "Tell me the names of the people you might talk to if you were making a decision or had a concern and wanted to talk to someone." Respondents were asked to provide information on their named contacts' gender, age, occupation, marital status, birthplace, and frequency of church/temple attendance (among members), and whether contacts were members of their religious organization (yes/no). Using this information, the research team matched individuals who were named and assigned a unique identification number to each respondent and contact. The 936 respondents named 874 additional unique organizational members and 1031 external contacts totaling 2841 respondents and contacts. Thus, the data on social ties is exclusively among members of each religious organization, as well as contacts outside their organization.

For our first hypothesis on bonding social capital, we used the data on social network ties among members (n=1810) to develop an organization-level measure of bonding social capital for each of the 20 religious organizations. For our second hypothesis, we used the data on social network ties among members and their external (non-member) contacts (n=2841) to develop an organization-level measure of bridging social capital for each of the 20 religious organizations.

Dependent variable

Organizational involvement in HIV/AIDS activities—Religious leaders (n=20) were interviewed on the number of HIV/AIDS activities conducted at their organization in the last five years. They could select from options including: awareness and prevention workshops; providing individual support and counseling to people at risk or living with HIV/AIDS; disseminating education materials; and participating in policy advocacy or grassroots activism. A binary variable was constructed for HIV/AIDS involvement (0/1) based on whether an organization had at least one activity within the last five years.

Network Variables

Bonding Social Capital—A composite bonding social capital variable (low/high) was created using five measures: network density, reciprocity and three types of status homophily (gender, age and birth country) among members of each organization (n=1810).

Density is an organizational level measure of the proportion of ties observed out of all possible ties, with higher density indicating a more cohesive and bonded network. Density

values range from 0 (no connections) to 1 (completely connected), and controls for the size of the network. Reciprocity is an organizational level measure of mutuality calculated as the proportion of ties in which two people name each other as contacts. Reciprocity has a positive correlation with bonding social capital since it indicates mutual connection, trust and a high level of social support within a network. To separate organizations into categories of high and low density and reciprocity, the group mean was computed for the 20 religious organizations and recoded their respective density and reciprocity values as a binary variable (0/1), with 1 corresponding to organization density or reciprocity values equal to or above the group mean.

Status homophily is an organizational measure of the likelihood of members being tied with other members who have the same attribute. Homophily models for each organization included controls for reciprocity and density (see the “Data Analysis” section below for more information about the modeling approach). Gender, age category and birth country homophily estimates were recoded as a binary variable (0/1) with 1 corresponding to a statistically significant estimate at a p-value <.05.

The composite measure for bonding social capital was arrived at for each organization by adding the value (0 or 1) for each of the five measures, resulting in a range for the composite measure from 0 to 5. For example, an organization with high density, high reciprocity and statistically significant gender homophily, but not statistically significant age or birth country homophily, was coded as having a bonding social capital value of 3. Organizations with a bonding social capital value of 3 or higher were considered as having high bonding social capital.

Bridging Social Capital—A network level measure of membership heterophily was used to determine bridging social capital. Using the entire network of contacts (2841 members and non-members) for each organization, membership heterophily was measured as the likelihood of a religious organization’s members naming non-member contacts. Heterophily models for each organization included controls for gender, age category and birth country homophily. Statistically significant estimates of bridging social capital (p-value <.05) indicated a more diverse network allowing religious members to be further exposed to new ideas from people outside their organization. A religious organization was considered to have high bridging social capital (0/1) if they had a statistically significant estimate of membership heterophily.

Covariates

Organizational religion and denomination—Based on leader interviews (n=20), organizations were categorized into three distinct groups (Christian-Evangelical, Christian-Mainline Protestant, and Buddhist).

Attributes of network contacts—The following status or demographic attribute information on organization members and their external contacts (n=2841) on the social network survey: gender (male, female), age (in years), marital status (married, not married), and birth country (Hong Kong, Mainland China, Taiwan, Other). Age was recoded into five

categories: 18-24; 25-34; 35-44; 45-54; and 55+. Individuals by church or temple membership were categorized into a binary variable (yes/no).

Data Analysis

Descriptive statistics of organization-level indices of density and reciprocity for our first hypothesis on bonding social capital were generated using the *sna* package (Butts 2014) in the R statistical environment (R Core Team 2014). To test our first hypothesis, a t-test was conducted to compare means of the total bonding social capital score by HIV/AIDS involvement. To test our second hypothesis on bridging social capital, a Fisher's exact test was conducted to compare the presence of bridging social capital by HIV/AIDS involvement.

To estimate status homophily (gender, age and birth country) for the composite bonding social capital measure (hypothesis 1), and membership heterophily in hypothesis 2, exponential-family random graph models (ERGMs) were fitted using the *ergm* package (Hunter et al., 2008). Exponential-family random graph (*or p**) modeling is a statistical approach to modeling social networks that permits inferences about how network ties are patterned. ERGMs can model effects of covariates as well as structural effects in a network. ERGMs allow an assessment of whether the structures in an observed network are due to a specific mechanism rather than what would be expected by chance. ERGMs take into consideration the interdependency of ties and how the presence of one type of tie affects the presence of other ties. This allows us to control for specific variables in order to make inferences about the statistical significance of a specific type of organization-level network characteristic. For example, when analyzing whether an organization's gender homophily (a component of our bonding social capital measure) was statistically significant, we were able to control for density, reciprocity, age homophily and birth country homophily within the organization. ERGMs also allowed us to analyze whether bridging social capital, as measured by membership heterophily, was statistically significant over other tie-generating mechanisms, such as gender homophily (Lusher et al., 2012).

FINDINGS

Organization and member network demographics

Table 1 describes the member network demographics of twenty religious organizations in our sample, which includes ten Buddhist organizations, seven Christian-Evangelical organizations and three Christian-Mainline Protestant organizations. Out of twenty religious organizations, five organizations (highlighted in bold and grey) were involved in HIV/AIDS activities (Organizations 5, 9, 11, 12 and 16). Two of these organizations were Buddhist, one was Christian-Evangelical and two were Christian-Mainline Protestant. Among the twenty organizations, the sizes of their member networks varied widely from a range of 21 unique contacts (Organization 4, Buddhist) to 241 contacts (Organization 8, Christian-Evangelical). Buddhist organizations tended to be smaller than Christian organizations. All organizations had a high percentage of female network members, with Organization 12 (Christian-Mainline) having the smallest percentage of women (48%) compared with Organization 18 (Buddhist) having the largest (92%). Buddhist organizations tended to have higher female

participation than Christian organizations. The mean age of the entire sample was 46 years old with Christian organizations having a lower mean age. The majority (55%) of the sample was married. The organizational networks showed varied cultural and linguistic patterns by country of birth where members from one or two countries dominated most organizations. Organizations with a large number of ethnic Chinese members from Southeast Asia were classified as Other. Some networks had shared membership from China and Taiwan, China and Hong Kong, or China and Other, but there were no networks comprised of membership from both Hong Kong and Taiwan. These patterns reflect the varied regional, linguistic and cultural connections among the Chinese.

Bonding Social Capital and HIV/AIDS Involvement

Using the social network contacts of members, Table 2 presents each religious organization's level of bonding social capital, showing the composite measure (bonding total) in the last column and the five component measures disaggregated by values of density and reciprocity, and ERGM estimates of status homophily by gender, age category and birth country. Member networks from nine organizations were categorized as having high bonding social capital (bonding total ≥ 3) and eleven organizations were categorized as having low bonding social capital (bonding total < 3). Three out of the five organizations involved with HIV/AIDS activities (60%) were categorized as having low bonding social capital; whereas eight out of fifteen organizations not involved in HIV/AIDS activities (53%) had low bonding social capital. The t-test comparing bonding totals between organizations involved with HIV/AIDS activities and those not involved showed a significant difference (p -value $< .001$). This indicates organizations involved with HIV/AIDS have significantly lower levels of bonding social capital compared with organizations not involved with HIV/AIDS.

Bridging Social Capital and HIV/AIDS Involvement

Using the full network of contacts of members and non-members for each religious organization, Table 3 presents the ERGM estimates of bridging social capital as measured by membership heterophily across organizational contexts, controlling for network size, gender, age and country of birth homophily. Significant estimates (p -value $< .05$) of bridging social capital indicate organizational members are more likely to name external contacts (non-members of their church or temple) more than what would be expected at random. Among the entire sample, twelve organizations (60%) had high bridging social capital. All five organizations involved in HIV/AIDS (100%) and seven out of the fifteen organizations not involved in HIV/AIDS (47%) had high bridging social capital. A Fisher's exact test comparing the difference in proportions was statistically significant at $\alpha < .1$ (p -value=0.0547).

DISCUSSION

Our study examined the association between the level of bonding and bridging social capital formed with religious members and whether an immigrant church or temple was involved in HIV/AIDS activities. We hypothesized there would be no significant differences by HIV/AIDS involvement because of the central role of religious organizations in immigrants' lives, but we found religious organizations involved in HIV/AIDS were more likely to have

low levels of bonding social capital, indicated by organizational members having fewer ties and fewer attributes in common. Our finding of high bridging social capital associated with HIV/AIDS involvement indicated by organizational members having significantly more ties to people outside their church or temple was consistent with the theoretical assumption that bridging social capital is related to more openness towards diverse or controversial ideas and information.

Our findings contribute to the debate on the relationship between bonding and bridging social capital. Recent empirical and theoretical research has commonly treated them as contrasting concepts (Kawachi et al., 2004; Kim et al., 2006). However, Putnam (2000) and Stovel, Golub and Milgrom (2011) posit that bonding and bridging social capital are not mutually exclusive and can be grafted across different dimensions in an organization. Our analysis found support for both camps in that bridging social capital tended to occur alongside some but not all measures of low bonding social capital. The religious organizations that had significantly more bridging social capital tended to have higher birth country homophily and higher age homophily, but lower gender homophily, lower density values and lower reciprocity values (Tables 2 and 3). These findings suggest that some indicators of bonding social capital, such as high density and reciprocity, may be mutually exclusive with bridging social capital, while other dimensions, such as some measures of status homophily, can occur along with bridging social capital.

A methodological explanation for the finding of low bonding social capital could be that our measurements failed to capture the multiple types of network ties that organization members might experience. With members interacting under primary (religious) and secondary (secular) activities, the bond between members may not be limited to individuals whom they would go to “if... making a decision or had a concern and wanted to talk to someone.” In addition to questions on close confidants, feelings of trust and organizational belonging may be better captured with specific questions on who provides them with instrumental support. Future research employing these diverse network questions would shed more light on the types of intra-organizational dimensions in which bonding and bridging social capital occur.

The findings in this study should be considered in light of some limitations. First, the cross-sectional nature of the data limits the ability to determine causality between bonding and bridging social capital and HIV/AIDS involvement.

Second, the networks in our study may reflect a selection bias as a result of selective sorting into religious organizations. While random sampling methods were employed to select respondents, we were not able to control for the kind of selective sorting that would lead a person who prefers diverse contacts and more non-secular activities to be more likely to join a religious organization with more bridging social capital.

Third, our focus on HIV/AIDS involvement as a dichotomous measure does not address the importance of examining the number and type of HIV/AIDS activities, and whether these activities were effective in raising the level of HIV/AIDS knowledge or decreasing HIV/AIDS stigma. Future research should investigate how social network structures influence the

selection of HIV/AIDS activities in different religious settings, the types of messages promoted, and the diffusion of effective HIV/AIDS information.

Despite these limitations, our findings have implications for future research. First, this study contributes to the literature with the testing of social network theories on less studied populations (immigrants, Chinese) and religions (Buddhism). Most social network studies of community organizations often rely on a sample of one or two networks, our sample of 20 organization-based social networks with 2841 contacts has provided a unique opportunity to compare network structures across organizations.

Second, our sampling methodology and research model allow our findings to be generalizable to similar communities – both in the United States and abroad – that are marginalized from mainstream society. These types of communities tend to be more bounded because they experience barriers to participation due to race, ethnicity, immigrant status or socioeconomic status. This allows religion to play a larger and more multi-faceted role in their daily lives where people rely on religious organizations to give them the needed moral guidance, instrumental resources and legitimacy to overcome social, economic and political barriers (Putnam and Campbell, 2012; Roozen et al., 1984; Smidt, 2003).

Third, our findings suggest the decisions to engage in HIV/AIDS activities among Chinese immigrant religious organizations may be partially shaped by social network structures that members form through their relationship ties, and are not solely determined by top-down policies from leaders or religious doctrine. While we are aware that distinctions by religion type may be conceptually and methodologically problematic because of the diversity of denominational differences, we did not find any significant differences in social capital or HIV/AIDS involvement by religion or denomination. In our sample, one religion or denomination was not significantly more represented among organizations involved in HIV/AIDS activities. Our findings showed there were equal numbers of Buddhist and Christian organizations with significant bridging social capital. Additionally, among the Christian organizations, many with significant bridging social capital were from the typically more conservative Evangelical denominations.

Fourth, our use of social network analysis enables us to operationalize and test the effects of different dimensions of social capital. Our data and methodology allow for an examination of how characteristics of the social ties between people are associated with organizational activities. More importantly, our methodological use of ERGMs allows our analysis to move beyond the descriptive to uncover some of the generative processes that underlie network structures, which in turn, affect social capital formation and HIV/AIDS involvement.

In addition to implications for research, our findings highlight additional HIV/AIDS intervention strategies for collaborations that do not solely involve engaging with religious leadership or assuming willingness based on religion or denomination. Our results suggest that prioritizing organizations with members who have more external contacts may be effective in introducing HIV/AIDS activities. Evidence of bridging social capital may be in the form of secular services being offered to people in the community and not restricted to members, or the organization being active in neighborhood collaborations and activities.

Our study calls attention to the important role of religious organizations in immigrant life, including addressing secular issues such as HIV/AIDS awareness. Our results suggest low bonding social capital and high bridging social capital are associated with HIV/AIDS involvement among Chinese immigrant religious organizations. More importantly, our study highlights the value of looking below the surface of religious leadership and religion type to better understand how the structure of member relationships can affect organizational decisions on HIV/AIDS involvement.

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Table 1

Descriptive statistics of member networks in religious organizations

Org. ID	Involved in HIV/AIDS	Religion (Denomination)	Members (N)	Female %	Age mean (s.d.)	Married %	Country Born %				Missing
							Hong Kong	China	Taiwan	Other	
1	No	Buddhist	40	68	48 (10.60)	60	3	3	60	10	25
2	No	Buddhist	59	61	45 (18.56)	59	8	29	3	46	14
4	No	Buddhist	21	67	56 (14.62)	38	48	10	0	10	33
13	No	Buddhist	58	83	53 (17.81)	52	5	45	2	17	31
15	No	Buddhist	38	68	44 (13.70)	71	18	37	0	11	34
17	No	Buddhist	62	65	49 (11.49)	35	8	24	31	13	24
18	No	Buddhist	60	92	58 (10.03)	58	7	52	12	20	10
19	No	Buddhist	75	76	41 (14.66)	69	0	79	0	4	17
3	No	Christian (Evangelical)	127	62	40 (15.37)	52	3	14	20	39	24
6	No	Christian (Evangelical)	139	58	43 (15.25)	72	39	15	0	10	36
7	No	Christian (Evangelical)	197	57	37 (18.96)	51	14	16	4	18	49
8	No	Christian (Evangelical)	241	50	32 (12.38)	51	0	55	0	0	45
14	No	Christian (Evangelical)	87	64	42 (18.18)	55	21	11	0	41	26
20	No	Christian (Evangelical)	63	52	33 (9.99)	57	5	76	2	0	17
10	No	Christian (Mainline)	59	59	57 (17.61)	61	0	2	66	2	31
9	Yes	Buddhist	74	73	56 (12.58)	53	11	35	0	38	16
11	Yes	Buddhist	64	78	58 (15.24)	50	6	53	0	3	38
5	Yes	Christian (Evangelical)	129	63	41 (14.87)	64	0	20	15	2	64
16	Yes	Christian (Mainline)	91	70	46 (18.14)	53	26	40	0	4	30
12	Yes	Christian (Mainline)	126	48	40 (14.90)	46	2	68	1	1	29

Table 2

Bonding Social Capital

Org. ID	Involved in HIV/AIDS	Religion (Denomination)	Members (N)	Density	Reciprocity	Individual Bonding Measures			Bonding Total
						Gender	Age	Country born	
Low Bonding Social Capital (<3 bonding total)									
13	No	Buddhist	58	0.016	0.111	0.02 (0.23)	0.40 (0.24)	0.38 (0.22)	0
11	Yes	Buddhist	64	0.012	0.170	0.34 (0.21)	-0.26 (0.24)	0.75*** (0.20)	1
4	No	Buddhist	21	0.036†	0.000	0.58 (0.40)	0.10 (0.43)	0.66 (0.39)	1
9	Yes	Buddhist	74	0.009	0.042	0.31 (0.20)	0.41* (0.21)	0.48* (0.21)	2
12	Yes	Christian (Mainline)	126	0.006	0.157	0.71*** (0.14)	-0.04 (0.10)	0.39** (0.14)	2
18	No	Buddhist	60	0.013	0.085	0.44 (0.28)	0.84*** (0.23)	1.15*** (0.23)	2
17	No	Buddhist	62	0.012	0.170	0.64** (0.24)	-0.34 (0.27)	0.53* (0.14)	2
19	No	Buddhist	75	0.012	0.085	0.19 (0.19)	0.94*** (0.20)	0.47* (0.21)	2
3	No	Christian (Evangelical)	127	0.008	0.081	0.23 (0.14)	1.23*** (0.14)	0.62*** (0.14)	2
8	No	Christian (Evangelical)	241	0.003	0.055	0.38*** (0.11)	0.90*** (0.12)	0.16 (0.11)	2
14	No	Christian (Evangelical)	87	0.022†	0.287†	0.02 (0.23)	0.40 (0.24)	0.38 (0.22)	2
High Bonding Social Capital (≥ 3 bonding total)									
5	Yes	Christian (Evangelical)	129	0.008	0.121	0.36** (0.13)	0.80*** (0.13)	0.66*** (0.12)	3
16	Yes	Christian (Mainline)	91	0.014	0.191†	0.21 (0.14)	0.84*** (0.14)	0.29* (0.24)	3
10	No	Christian (Mainline)	59	0.023†	0.179†	0.34 (0.20)	0.42* (0.21)	0.22 (0.20)	3
15	No	Buddhist	38	0.036†	0.235†	0.01 (0.27)	0.67* (0.27)	0.85** (0.27)	4
7	No	Christian (Evangelical)	197	0.008	0.205†	0.48*** (0.09)	1.55*** (0.09)	0.51*** (0.09)	4
6	No	Christian (Evangelical)	139	0.015	0.263†	0.59*** (0.10)	1.07*** (0.10)	0.36*** (0.10)	4
1	No	Buddhist	40	0.038†	0.271†	0.62*** (0.22)	0.60** (0.22)	1.07*** (0.22)	5

Org. ID	Involved in HIV/AIDS	Religion (Denomination)	Members (N)	Density	Individual Bonding Measures				Bonding Total ^c
					Reciprocity	Gender	Age	Country born	
2	No	Buddhist	59	0.032 [†]	0.378 [†]	0.44 [*] (0.18)	0.12 ^{***} (0.17)	1.46 ^{***} (0.18)	5
20	No	Christian (Evangelical)	63	0.019 [†]	0.347 [†]	0.82 ^{***} (0.19)	0.60 ^{**} (0.19)	0.76 ^{***} (0.21)	5

[†] 0.017 group density mean;
0.172 group reciprocity mean
^{*} p<.05,
^{**} p<.01,
^{***} p<.001

Table 3

Bridging Social Capital

Org. ID	Involved in HIV/AIDS	Religion (Denomination)	Members (N)	Member Heterophily ERGM estimate (s.e.)
15	No	Buddhist	45	-0.09 (0.40)
2	No	Buddhist	81	0.01 (0.21)
1	No	Buddhist	68	0.19 (0.24)
4	No	Buddhist	29	0.49 (0.43)
6	No	Christian (Evangelical)	228	0.03 (0.11)
7	No	Christian (Evangelical)	284	0.04 (0.11)
14	No	Christian (Evangelical)	154	0.15 (0.13)
10	No	Christian (Mainline)	78	0.01 (0.25)
19	No	Buddhist	104	0.49 [*] (0.21)
13	No	Buddhist	83	0.56 [*] (0.24)
18	No	Buddhist	89	0.76 ^{**} (0.23)
17	No	Buddhist	98	0.99 ^{***} (0.22)
20	No	Christian (Evangelical)	105	0.57 ^{**} (0.19)
3	No	Christian (Evangelical)	189	0.54 ^{***} (0.15)
8	No	Christian (Evangelical)	341	0.70 ^{***} (0.12)
9	Yes	Buddhist	116	0.93^{***} (0.20)
11	Yes	Buddhist	109	1.10^{***} (0.20)
5	Yes	Christian (Evangelical)	223	0.72^{***} (0.13)
16	Yes	Christian (Mainline)	187	0.93^{***} (0.13)
12	Yes	Christian (Mainline)	230	1.17^{***} (0.14)

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