

Full Length Research Paper

The association between religious affiliation and frequency of attendance at religious services on HIV risky behaviors among people living with HIV/AIDS

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The purpose of this study was to examine if religious affiliation and frequency of attendance at religious services were associated with HIV risky behaviors among people living with HIV/AIDS (PLWHA). The participants are HIV positive clients of a community based HIV/AIDS outreach facility (CBHAOF) located in Montgomery, Alabama, USA. The participants completed the questionnaire during their medical visits to the clinic at their own convenience and that of the facility's staff. A total of 341 questionnaires were distributed to PLWHA and 326 (96%) were fully completed and returned. There were more male than female participants (56 versus 42%). The majority of the respondents (67%) were between 30 and 49 years of age. Nearly two thirds of the participants (64%) were African Americans whilst 36% were other races combined (White = 29%, Hispanic = 3% and other races = 4%). A chi-square test was used to examine the association between selected variables. Findings show substantial variations of selected HIV risky behaviors according to religious affiliation and frequency of attendance at religious services ($p < 0.05$). The study findings suggest the importance of religious affiliation and frequency of attendance at religious services in reducing HIV risky behaviors among PLWHA. The findings have implications for HIV/AIDS prevention and we recommend that it is important to incorporate Faith-based organizations in the global fight against HIV/AIDS.

Key words: Religious affiliation, attendance, religious services, HIV/AIDS risky behaviors, people living with HIV/AIDS (PLWHA).

INTRODUCTION

In order to effectively control the spread of HIV/AIDS, prevention efforts need to target individuals living with HIV/AIDS (Baskin et al., 2005). The Centers for Disease Control and Prevention (CDC) also places emphasis on the need to prevent new infections by working with people already diagnosed with HIV/AIDS (CDC, 2003). The promotion of protective health behaviors is one of the major mechanisms in preventing HIV transmission. This is

important because some people living with HIV/AIDS (PLWHA) continue to engage in behaviors that could transmit HIV (Gordon et al., 2005).

Religion has a major influence in the lives of many people in the world including PLWHA and populations at risk for HIV (Fuller, 2001). Since religion could help in the practice or adoption of protective health behaviors (Kagimu et al., 1998), Faith-based HIV/AIDS prevention programs are presumed to be an effective way to reduce the incidence of HIV/AIDS by encouraging safer and less HIV risky behaviors. With this in mind, many religious organizations are getting involved in HIV/AIDS prevention education programs and are likely to be more effective in

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preventing the spread of HIV/AIDS (Green, 2001). Studies examining the relationship between religion and HIV risky behaviors have found that individuals who frequently attend religious services more often are more likely to have fewer sexual partners (Lefkowitz et al., 2004). Other studies that examine the association between religious affiliation and HIV risky behaviors have found similar results. For example, evidence from South Africa (Garner, 2000), Zimbabwe (Gregson et al., 1999), and Brazil (Hill et al., 2004) shows that members of Pentecostal churches exhibit reduced risk of HIV infection, due in part to their reduced likelihood of having extramarital partners when compared with members of other religious groups. A study by Trinitapoli and Regnerus (2004) shows that independent of denomination, attendance at religious services is associated with reduced HIV risky behaviors. A study by Rowatt and Schmitt (2003) also shows that individuals who report having a religious affiliation have fewer sexual partners than those with no affiliation. These results suggest that religion may help in deterring individuals from engaging in risky behaviors that promote the transmission of HIV.

There are many possible reasons to believe why religion may deter individuals from engaging in behaviors that could transmit HIV infection. One reason is that religious activities, communities, and beliefs frame the daily behaviors and attitudes of many people which can contribute to HIV prevention. These include shaping family and community values around sexual behavior and other behaviors associated with HIV risk behaviors; supporting families and communities in the enforcement of norms and values; providing direct guidance or information to congregants regarding HIV risk behaviors; providing care to HIV-infected individuals and their families; connecting congregants to HIV/AIDS related services; creating networks and cooperating with other organizations involved in HIV/AIDS related services and/or conducting outreach to individuals and groups at high risk of contracting HIV (Gray, 2004; Garner, 2000).

The other possible avenue by which religion may have an impact on HIV risky behaviors may be by acting as a source of social control (Wilcox et al., 2001). According to social control theorist, all humans have an innate drive towards deviance that can be restrained by bonds to social organizations (Hirschi, 1969). In line with this notion it may be suggested that if people are bonded to a social organization such as a religious organization which has conservative norms regarding risky behavior, they could be constrained from carrying out risky behaviors (Crockett et al., 1996).

The main message promoted by many of the religious groups is the adoption of abstinence (Marindo et al., 2003). Part of the basis for religion as a social control is

that it provides consequences for deviance, such as guilt, shame, public embarrassment, and threat or expectation of divine punishment (Ellison and Levin, 1998). Knowledge and fear of these consequences provides motivation for conformity to religious doctrines and practice of healthy behaviors as an exclusive strategy for preventing the spread of HIV/AIDS.

Studies mentioned previously have identified religion as a possible protective factor against HIV infection. However, religious affiliation and attendance of religious do not always correlate with HIV protective behaviors. For example, a study by Lagarde et al. (2000) shows that individuals who regularly attended religious services and who considered themselves as religious were less likely to display HIV-preventive attitudes (e.g. intentions to change behavior to protect against contracting HIV) than those who do not have religious affiliation or do not attend religious services. In another study, religious affiliation has been found to correlate with high level of HIV/AIDS knowledge but not necessarily with protective behaviors (Takyi, 2003).

Given the current enormous HIV/AIDS pandemic crisis, the role that religion plays in the lives of so many people, including PLWHA is very crucial. The increasing importance of religious organizations in HIV/AIDS prevention efforts is important in determining whether religious affiliation and attendance at religious services have any influence on HIV risky behaviors. Studies have reported that religious groups have had some success in reducing the impact of the HIV/AIDS pandemic in many countries by promoting abstinence and partner reduction (Green, 2001; United States Agency for International Development, 2003).

A comparative study of risky sexual behavior by religious groups revealed that those with no religious affiliation reported having more sexual partners than those reported to have religious affiliation or conservative Protestants (Billy et al., 1993). It is not surprising that HIV risky behaviors vary by religious affiliation since religious traditions draw upon different sources of guidance in moral decision making. For example, it has been reported that several of the religiously motivated behaviors practiced by Muslims are favorable against HIV transmission and prevention and have led to lower HIV/AIDS prevalence rates among Muslims (Gray, 2004). These factors include fewer self-reported instances of extramarital sexual intercourse (Rakwar et al., 1999) and reduced use of substances (Mbulaiteye et al., 2000). It has also been argued that the Pentecostal church's emphasis on salvation and strong social presence (e.g. youth groups, frequent prayer meetings) prevents members from engaging in as much extra- and pre-marital sex as other Christian denominations, thus protecting against HIV infection (Garner, 2000).

Another significant risky behavior for HIV infection is drug use before sex and sex with injecting drug users. These behaviors and their relationship to the spread of HIV are increasingly recognized problems in the world in the transmission of HIV (CDC, 2007). A study assessing the link between HIV infection and drug use before sex revealed strong correlation between the prevalence of sexual intercourse with injecting drug users and HIV infection (Ndeti et al., 2006). It was estimated that around 10% of HIV infections globally at the end of 2003 were directly as a result of transmission through injection drug use, either by using drug before sex or sexual intercourse with injecting drug users (Aceijas et al., 2004). Since the beginning of the HIV/AIDS pandemic, drug use before sex and sex with injecting drug users are one of the most common routes of HIV transmission in the USA (WHO/UNAIDS, 2004; WHO, 2005).

One of the reasons underlying the correlation between drug use before sex and high-risk behaviors among PLWA is that under the influence of drugs, people tend to lose their inhibitions and have their judgment impaired and can easily find themselves involved in high risky behaviors leading to HIV infection. Studies have consistently demonstrated that people who use drugs before sex have a higher probability of engaging in unprotected and unplanned sexual intercourse and are therefore at a higher risk of HIV infection than those who do not use drugs before sex (George et al., 2000; Dermen and Cooper, 2000; Abderhalden, 2007). The mechanism by which drug use before sex and sex with injecting drug users influence HIV risky behaviors is associated with situational factors such as disinhibition effects, cognitive impairment, social modeling or the fact that substance use and risk taking behaviors often occur in the same social venues (Abderhalden, 2007). These include: Decreased inhibitions and risk perception, belief that drugs enhance sexual arousal and performance; deliberate substance use as an excuse of high-risky behaviors; (Science Daily, 2006).

In other words, drug use before sex gives people more courage (sometimes significantly more) to engage in HIV risky behaviors. These may be in the form of having unplanned sexual activities, and unprotected sex which can lead them to do what they would otherwise not have done (Abderhalden, 2007; Science Daily, 2006). Acheampong and Stephen (1986) reported that drug use before sex had a significant association with all religious denominations, although the magnitude of the association varied by denomination. The National Commission on Marijuana and Drug Abuse also reported that substance use appears to vary significantly by the religious affiliation of the users, Jews and Catholics appear to be slightly overrepresented as compared to Protestants.

To get a comprehensive picture, it is important to

assess the effects of religious affiliation and attendance at religious services on HIV risky behaviors. As indicated, this study sought to investigate whether religious affiliation and frequency of attendance at religious services are associated with HIV/AIDS risky behaviors among PLWHA. Results of this study may be useful for the development of interventions to prevent potential risk to others' health (new HIV infection) and to prevent risk for contracting secondary infections for example, syphilis and gonorrhea, among PLWHA.

MATERIALS AND METHODS

Data were collected using a questionnaire survey instrument from 326 HIV positive clients of a community based HIV/AIDS outreach facility (CBHAOF) located in Montgomery, Alabama, USA. The major modules of the questionnaire included: Socio-economic and demographic information; substance use, and HIV risky behaviors. Tuskegee University's Institutional Review Board approved the final questionnaire, informed consent forms and study protocol. A convenience sampling method was used to select the study sample. Eligibility criteria were age 18 years or older and diagnosed as being HIV positive by CBHAOF. The participants completed the questionnaire during their medical visits to the clinic at their own convenience and that of the facility's staff. A total of 341 questionnaires were distributed to PLWHA and 326 (96%) were fully completed and returned.

Measures

All measures were drawn from the data collected using the questionnaires. Data were collected on socio-demographic characteristics, religious affiliations and frequency of attendance at religious services, sexual behavior and drug use. Demographic information was obtained from the survey about a participant's age, sex, ethnicity, education, and income. Participants were asked about their religious affiliation. They were given a choice of choosing from among 14 denominational affiliations, as well as categories of having no religious affiliation preference, or filling in a religious affiliation preference not listed in the list provided. The reported affiliations were as follows: "Apostolic," "Baptist," "Catholic," "Church of God in Christ," "Episcopal," "Jehovah's Witness," "Lutheran," "Methodist," "Mormon," "Moslem," "Orthodox," "Pentecostal," "Presbyterian," and "Seventh day Adventist." Data on frequency of attendance at religious services was collected from the questionnaire's question, "How often do you go to a place of worship in a month?" The responses included: "Once a month," "twice a month," "thrice a month," "four times a month," "don't know," and "none."

The question in regard to the number of sexual partners was asked as part of HIV/AIDS risky behaviors assessment. In reference to the preceding period of 12 months prior to the survey, each participant was asked about his or her total number of sexual partners. Data on the number of sexual partners were collected from the questionnaire's question, "How many people did you have sexual intercourse with in the most recent one month?" Potential responses ranged from none, one person to six or more people. Information in regard to drug use before sex was collected from the questionnaire's question, "Did you use drugs before you had sexual intercourse the last time?" The responses included "yes" "no" and "don't know." Data on sexual intercourse with injecting drug users

was collected from the questionnaire's question, "Had you ever had sexual intercourse with a person or persons who injected drugs intravenously?" The responses included: "yes," "no," and "don't know."

Statistical analyses

Demographic variables were summarized using descriptive statistics. A chi-square test was used to examine the association between selected religious and HIV risky behavior variables.

RESULTS

Table 1 shows a summary of the demographic and socioeconomic characteristics of the participants by number and percentages in relation to their sex, race, age group, marital status, level of education and level of income. Table 1 indicates that there were more male than female participants (56 versus 42%). The majority of the respondents (67%) were between 30-49 years of age. Nearly two thirds (64%) were African Americans whilst 36% were other races combined (White = 29%, Hispanic = 3% and other races = 4%). Most of the participants were single (56%) and employed for wages (39%). About 44 and 39% of the participants had college and grade 12 level of education respectively. Nearly a third of the participants (31%) had an annual income of \$9,999 and under.

Table 2 shows the actual numbers and percentages of participant's religious affiliations and frequency of attendance at religious services by number of sexual partners in the last 12 months. There were statistically significant associations between religious affiliation and number of sexual partners in the past 12 months ($\chi^2 = 108$, $p = 0.01$). Overall, three out of every ten (30%) participants had two or more sexual partners in the past 12 months. Religious groups with the largest proportions of participants that had multiple sexual partners (two or more sexual partners) were Presbyterian (46%), Pentecostal (45%) and Catholic (39%). The Baptists (25%) and Methodist (28%) were the least likely to have multiple sexual partners in the past 12 months.

The association between frequency of attendance at religious services and number of sexual partners were as expected, in that a high frequency of attendance at religious services is associated with a lower percentage of reporting multiple sexual partners. Participants who attended religious services four times a month were less likely to report multiple sexual partners compared to respondents who attended only one time a month (17 versus 31%, $\chi^2 = 56$, $p = 0.03$). This shows that, frequency of attendance at religious services significantly decreased the proportion of participants who had two or more sexual partners in the past 12 months.

The effects of attendance at religious services on drug use before sex and sexual intercourse with a person or persons who injected drugs intravenously were also as expected. As shown in Table 2, participants who attended religious services four times a month were less likely to use drugs before sex compared to respondents who attended one time a month (10 versus 22%, $p < 0.05$). Furthermore, participants who attended religious services four times a month were less likely to report sexual intercourse with a person or people who injected drugs intravenously compared to respondents who attended one time a month (22 versus 26%, $p < 0.05$). The results in Table 3 show that frequency of attendance at religious services is associated both with reduced reporting of drug use before sex and sex with injecting drug users.

DISCUSSION

Even though religious affiliation and frequency of attendance at religious services are not always associated with HIV/AIDS protective behaviors (Lagarde et al., 2000; Takyi, 2003), this study observed significant association between number of sexual partners and drug use behavior before sexual intercourse with frequency of attendance at religious services. This indicates that people who attend church often also happen to be those that tend to have fewer partners.

The findings of this study are consistent with studies that have identified religion as a possible protective factor for HIV infection (Lefkowitz et al., 2004; Garner, 2000; Hill et al., 2004; Rowatt and Schmitt, 2003). A study by (Rowatt and Schmitt, 2003) also shows that religious affiliation and frequency of attendance at religious services have been found to be associated with having fewer sexual partners across various time frames. Furthermore, the findings of this study is also consistent with a study that found an inverse association between religious affiliation and frequency of attendance at religious services and other risky behaviors, such as cigarette smoking and substance use and abuse (Koenig et al., 2001). Here, it is important to note that those risky behaviors studied by Koenig et al. (2001) involve risk to one's own health, whereas HIV risky behaviors in PLWHA involve potential risk to others' health which could lead to high prevalence and incidence of HIV/AIDS.

The most plausible explanation for the significant association observed between religious affiliation or frequency of attendance at religious services and HIV risky behaviors is related to the impact of religion on moral reasoning of individuals. The moral reasoning has been found to be inversely related to HIV risky behaviors (Hubbs-Tait and Garmon, 1995). Support for this

Table 1. Number and percentage of respondents by sex, race, age group, marital status, employment status, level of education and level of income.

Demographic and socioeconomic characteristics		n	%
Sex	Female	136	42
	Male	181	56
	Transgender	4	1
	Transsexual	5	2
Race	African American	208	64
	White (non-Hispanic)	94	29
	Hispanic	10	3
	Other races	14	4
Age group	18-29	53	19
	30-39	86	30
	40-49	104	37
	50-59	34	12
	60 and above	6	2
Marital status	Single	183	56
	Married	47	15
	Divorced	47	15
	Separated	31	10
	Widow(er)	3	1
	Other	13	4
Employment status	Employed for wages	122	39
	Unable to work	59	19
	Unemployed	50	16
	Student	25	8
	Homemaker	25	8
	Self-employed	18	6
	Retired	12	4
Level of education	Graduate school	11	3
	College 4 years or more	50	15
	College 1 year to 3 years	85	26
	Grade 12 or GED	126	39
	Grades 9 through 11	40	12
	Grades 1 through 8	11	3
Level of income	\$9,999 or under	97	31
	\$10,000 to \$14,999	45	14
	\$15,000 to \$19,999	38	12
	\$20,000 to \$24,999	36	11
	\$25,000 to \$29,999	23	7
	\$30,000 to \$49,999	20	6
	\$50,000 to \$74,999	13	4
	Don't know	46	14

Table 2. Number and percentage of number of sexual partners in the past 12 months by religious affiliations and frequency of attendance at religious services.

Religious affiliations and attendance at religious services value	Number of sexual partners in the past 12 months			χ^2 value	P value
	None n (%)	One n (%)	Two or more n (%)		
Religious affiliations ^a					
Baptist (N=146)	47(32)	62(43)	37(25)	108	0.01
Catholic (N=26)	12(46)	4(15)	10(39)		
Methodist (N=28)	10(36)	10(36)	8(28)		
Pentecostal (N=20)	4(20)	7(35)	9(45)		
Presbyterian (N=13)	4(31)	3(23)	6(46)		
Total (N=233)	77(33)	86 (37)	70(30)		
Monthly attendance at religious services					
None (N=70)	19(27)	37(53)	14(20)	56	0.03
One (N=45)	14(31)	17(38)	14(31)		
Two (N=35)	16(46)	13(37)	6(17)		
Three (N=34)	19(56)	9(26)	6(18)		
Four (N=80)	34(43)	32(40)	14(17)		

^a The analysis did not consider respondents with other religious affiliations because the expected cell count was less than five.

Table 3. Number and percentage of drug use before sex and sex with injecting drug users by monthly attendance at religious services.

Monthly attendance at religious service ^c	Drug use before sex ^a		Sex with injecting drug users ^b	
	Yes n (%)	No n (%)	Yes n (%)	No n (%)
None	14(22)	51(78)	15(32)	32(68)
One	8(22)	29(78)	9(26)	25(74)
Two	6(17)	30(83)	4(12)	29(88)
Three	3(9)	30(91)	1(4)	27(96)
Four	6(10)	55(90)	13(22)	46(78)

^an = 232. ^bn = 201. ^c attendance at religious services was significantly associated with drug use before sex and sex with injecting drug users ($p < 0.05$).

possibility is also reported by Maclean et al. (2004) who indicated that a religious orientation that serves as the primary motive for an individual and gives meaning to all aspects of that person's life has been found to be positively associated with moral reasoning. Thus, it is possible that some of the association between religious affiliations and attendance on HIV risky behaviors could be explained by the moral reasoning. The role this factor may play in HIV risky behaviors in PLWHA warrants further investigation.

Although participants of some religious affiliations were more likely to report HIV risky behaviors than in other affiliations, participants from all religious affiliations were

found to be involved in having multiple sexual partners. Overall, in one out of every approximately three (30%) participants in all religious affiliations reported as having had two or more sexual partners in the most recent past 12 months. Analysis of the number of sexual partners by religious affiliations and frequency of attendance at religious services indicate that frequency of attendance at religious services in PLWHA who participated in the survey was associated to the practice or adaptation of protective health behaviors than belonging to a religious affiliation. The findings specifically indicate that frequency of attendance is more important than religious affiliation as a predictor of multiple sexual partners. Religious

attendance predicted a lower percentage of multiple sexual partners compared to religious affiliations (20 versus 30%). The findings also indicate that, irrespective of their religious affiliations and frequency of attendance at religious services, PLWHA engage in HIV risky behaviors. The most possible explanation for this finding is related to the highly active antiretroviral therapy (HAART). With the advent of (HAART) in 1996, mortality among PLWHA decreased dramatically (Bouhnik et al., 2007). Most of the PLWHA who get therapeutic benefits from HAART may attain improved quality of life and functional status with the alleviation of physiological, social, and psychological consequences of HIV/AIDS. These gains may be accompanied by engaging in HIV risky behaviors that include multiple sexual partners, drug use before sex and sex with injecting drug users.

The findings have implications for HIV/AIDS prevention. Further research that examines multiple measures of religious teachings and the role of religious education and moral reasoning in HIV/AIDS prevention programs is needed. The findings suggest the important significance of religious affiliation and frequency of attendance at religious services in reducing HIV risky behaviors among PLWHA. Furthermore, the findings suggest that it is important to incorporate Faith-based organizations in the global fight against HIV/AIDS.

Conclusion

Affiliation with three religious groups such as Presbyterian, Pentecostal and Catholic compared to the religious groups in this study (Apostolic, Baptist, Church of God in Christ, Episcopal, Jehovah's Witness, Lutheran, Methodist, Mormon, Moslem, Orthodox, and Seventh day Adventist) was associated with increased HIV risky behaviors; it increased the likelihood of multiple sexual partners, drug use before sex, and sex with injecting drug users. The findings of our analyses should not be construed to conclude that these religious groups promote HIV risky behaviors. Rather, the findings suggest the need to further explore the cause and effect relationship between religious affiliation or frequency of attendance at religious services and HIV risky behaviors using multiple measures. Further studies using a variety of religion and religiosity measures would be necessary to move beyond the reliance on the simple measures of religious affiliation and attendance on HIV risky and protective behaviors. Possible mediating factors of religion and source of religious influences such as social support, distinct cultural practices, or the content of religious messages on HIV risky behaviors should also be carefully considered in future research. Further more detailed research is needed for a better understanding of

the mechanisms through which how and when religious organizations influence HIV risky and protective behaviors. This will be important not only for researchers in the field of public health, but also for those working on the ground to curb the spread of the HIV/AIDS pandemic.

Limitations

In considering our results, it is important to be aware of certain limitations of this study. First, this study is based on self-reported data collected from a convenient sample of 326 PLWHA in Alabama, USA, which means that the findings presented here may not be generalizable to all PLWHA. Second, the present analyses rely on self-reports of sensitive issues like number of sexual partners and drug use before sex. Thus, it is likely that high-risky behaviors leading to HIV infection are underreported in the data we used.

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