

Disclosure and Self-Efficacy Among HIV-Positive Men Who Have Sex with Men: A Comparison Between Older and Younger Adults

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Abstract

Men who have sex with men (MSM) continue to be disproportionately affected by HIV in the US. HIV among older adults also continues to be an important public health problem. Age is associated with disclosure of HIV serostatus and self-efficacy for condom use. However, studies examining self-efficacy and disclosure among older MSM (age 50 and older) living with HIV are lacking. The aim of this study was to assess the associations between being 50 and older, and disclosure behaviors, intentions and attitudes, and self-efficacy for condom use, disclosure, and negotiation for safer sex practices among HIV-positive MSM. Data were gathered from 340 participants at the baseline assessment of a longitudinal disclosure intervention study. Linear regression was used to determine the association between being older (age 50 and older) and disclosure behaviors, intentions and attitudes, and self-efficacy for condom use, disclosure, and negotiation for safer sex practices. After adjusting for time since diagnosis and number of sexual partners, MSM aged 50 and older scored lower in disclosure behavior ($\beta = -7.49$; 95% CI: $-14.8, -0.18$) and in self-efficacy for negotiation of safer sex practices ($\beta = -0.80$; 95% CI: $-1.57, -0.04$) compared to MSM 18–34 years. Intervention and prevention programs should endeavor to improve disclosure and self-efficacy for negotiating safer sex practices among older HIV-positive MSM. More health care providers should initiate sexual health discussions, especially among older HIV-positive MSM populations, which may help to improve their disclosure behavior and self-efficacy for negotiating safer sex practices.

Introduction

MEN WHO HAVE SEX WITH MEN (MSM) continue to represent the majority of the HIV/AIDS cases in the US. In 2013, MSM accounted for approximately seven in ten of the total estimated HIV diagnoses, and eight in ten of the estimated HIV diagnoses among men 13 and older.¹ Approximately 55% of the estimated AIDS diagnoses among adults and adolescents were MSM. Due to the disproportionate numbers and rates of MSM living with HIV, MSM have an increased chance of being exposed to HIV.²

The risk factors for HIV among MSM are complex. Approximately 57% of persons with an HIV diagnosis were MSM or MSM who also inject drugs.¹ Nevertheless, sexual risk behaviors, such as unprotected insertive anal sex, account for the majority of HIV infections among MSM.¹ Other risk factors for risky sexual behavior among MSM include less frequent HIV testing,³ low income,³ childhood sexual abuse,⁴ and low self-efficacy for condom use.^{5,6}

HIV among older adults is also an important public health problem. Approximately 18% of estimated diagnoses of HIV infection and 27% of AIDS diagnoses in the US are among people aged 50 and older.⁷ However, the percentage of new HIV infections accounted for by adults aged 50 and older may even be higher among urban populations. In an academic medical center in New York City, approximately one in five (21%) of new HIV infections were among patients aged 50 and older.⁸ In addition, approximately seven in ten (69%) adults aged 50 and older who were newly diagnosed with HIV had a concurrent AIDS diagnosis compared to approximately four in ten (42%) adults aged 18–49.⁸

Individuals 50 and older living with HIV are also more likely to have additional co-morbidities compared to younger individuals, irrespective of HIV status or older individuals without HIV.⁹ Factors that may contribute to the growing problem of HIV among older adults include: lack of knowledge about HIV risk among older adults compared to younger people,^{7,10,11} the availability of prescription medication for

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erectile dysfunction,⁷ older adults being less likely to discuss their sexual health with their physicians, and their doctors being less likely to discuss sexual health and screening practices such as HIV testing among older patients.^{7,11} Indeed, the Centers for Disease Control and Prevention (CDC) recommendations for screening for HIV infection suggest HIV testing for patients aged 13–64,¹² and do not include adults aged 65 and older.

Age has been shown to be significantly associated with disclosure of HIV serostatus and self-efficacy for condom use.^{8,11–15} However, studies examining the association between age, and HIV disclosure and self-efficacy, especially among US populations are lacking. In addition, very few studies focus on older MSM populations, who are a vulnerable group. Tam et al. found that younger age was associated with higher odds of disclosure among women in Sub-Saharan Africa.¹³ Dankoli et al., found that among adult patients living with HIV in a secondary medical health center in North-Eastern Nigeria, patients younger than 40 years were more likely to disclose their HIV status compared to patients 40 years old or older.¹⁴ Another study showed that among MSM living with HIV attending an HIV voluntary counseling and testing center in Bangkok, Thailand, men aged 27–32 years were more likely to disclose their status to their sexual partners compared to men 26 years and younger.¹⁵

Age has also been shown to be associated with self-efficacy for condom use among people with substance use disorders in Taiwan,¹⁶ among midlife and older women in San Diego, California,¹⁰ and among MSM who seek sex partners from the internet in a national US study.¹⁷ One study of Italian residents found that compared to adults aged 18–49, adults aged 60–75 reported lower scores on perceived behavioral control, the way in which individuals perceive their ability in condom use.¹⁸

The association between age, and disclosure and self-efficacy may be explained by social cognitive theory. Social cognitive theory,^{19,20} which is based on a causal model depicting reciprocal causation, suggests that personal, behavioral, and environmental factors interact to impact each other. Thus, theoretically, as MSM get older, they may be less likely to disclose their HIV status due to the compounded discrimination that occur against MSM, people living with HIV, and against older adults. In addition, those who may have contracted HIV early in the epidemic faced an environment rich in stigma and discrimination. These experiences could result in a person desiring concealment of their serostatus as a protective factor. Older MSM with HIV may also be less likely to experience self-efficacy due to feelings of inadequacy that they may perceive personally possibly due to a lack of HIV knowledge and/or from their environment possibly due to a lack of sexual health discussions, especially with their health care providers.

Several studies have shown that disclosure of HIV status may help to reduce risky sexual behavior, such as unprotected sex,²¹ increase safer sex behavior with more condom use,² increase testing for sexually transmitted infections,^{22,23} and reduce HIV transmission.²⁴ Nevertheless, a few studies have also found no association or negative associations between disclosure and safer sex behavior.^{2,15} Low self-efficacy has also been linked to risky behavior, such as missed HIV primary care visits,²⁵ inconsistent condom use¹⁶ and needle-sharing.¹⁶ Examining outcomes such as the disclosure of HIV serostatus

and self-efficacy are crucial for MSM populations. However, studies examining self-efficacy and disclosure among older MSM (age 50 and older) living with HIV are lacking.

The aim of this study was to examine the associations between being an older HIV-positive MSM and disclosure behavior, disclosure intention and disclosure attitude, and self-efficacy for condom use, self-efficacy for disclosure, and self-efficacy for negotiation for safer sex practices. By exploring these relationships, we can determine if there is a need for interventions to improve and increase disclosure behaviors and attitudes, and self-efficacy geared towards older MSM populations living with HIV.

Methods

Data were gathered from 340 participants at the baseline assessment of a longitudinal randomized-controlled trial of an intervention designed with the aim of assisting MSM living with HIV disclose their serostatus to casual sex partners. For this study, MSM were recruited from two metropolitan statistical areas (MSA; Columbus OH, and Tampa, FL) from December 2009 through December 2014. Participants were HIV-positive, 18 years old or older, were sexually active with at least two partners in the last 12 months (at least one of which was a man), were English speaking, planned on living in the area for at least one year, and indicated an interest in learning more about disclosing their serostatus to sexual partners. Separate IRB approval was obtained for both recruitment locations. Participants were treated in accordance with the “Ethical Principles of Psychologists and Code of Conduct”.²⁶ Of the 830 people screened, 340 met the eligibility criteria and were enrolled in the study.

Study participants and recruitment

Participants ranged in age from 19 to 68, with an average age of 42 years ($SD = 11.0$). Most participants reported being single ($n = 238$, 70.6%). The average time since diagnosis was 10.7 years, with a range of 0.1–28.8 years ($SD = 8.2$). Number of partners in the past 30 days ranged from 0 to 30 with a mean of 2.9 partners ($SD = 3.5$).

Individuals were recruited through advertising efforts with local/state AIDS service organizations (ASOs). Caseworkers at ASOs were informed about the study. Handouts were made available for distribution to potential study participants or through newsletters and direct mailings. ASOs also featured advertisements on their websites, and materials and information were sent to clients for recruitment purposes. Recruitment materials were also distributed at HIV-related venues and forums held throughout the MSAs, and at local eating and drinking locations. Advertisements were also placed in local daily newspapers.

Data collection

Participants completed a baseline questionnaire administered using audio-computer assisted self-interviewing (ACASI) before randomization. Social desirability is a potential barrier in the collection of reliable data on serostatus disclosure.^{27,28} However, ACASI has been shown to be associated with more complete reporting of sensitive information, such as drug, sexual, and HIV risk behaviors.^{29,30} ACASI has also been accepted and is a preferred method of

data collection by participants in HIV risk-related studies.³⁰ Data on person-level characteristics (i.e., items and scales asked only once for each participant) and encounter-level characteristics (i.e., repeated measures for each participant) were obtained. Person-level items included sociodemographic characteristics, and global sexual/disclosure activities (i.e., count measures of specific activities during the prior 30 days). Encounter-level items included sexual activity and disclosure of HIV serostatus (i.e., specific activities and disclosure events occurring during the most recent five sexual encounters during the 30 days prior to baseline).

Measures

Age. Age was operationalized into three categories, 18–34, 35–49, and 50 and older, to determine if older MSM living with HIV (50 and older) would score lower or higher or the same on measures for disclosure behavior, attitudes, and intentions, and self-efficacy for condom use, disclosure and negotiation for safer sex practices compared to middle-aged (35–49) and younger (18–34) MSM living with HIV. Though the age of 50 may not indicate conditions affiliated with being older,¹⁸ the age cut-off of “50 and older” is used to refer to “older adults” in the current study, as this age range has been used by the CDC⁷ and in numerous studies in the US examining behavioral outcomes among adults living with HIV.^{31–35}

Disclosure behavior. Disclosure behavior was operationalized by 14 items asking participants about their HIV disclosure to sexual partners. For example, “I have disclosed my HIV status to ___ of my sexual partners to whom I gave oral sex without a condom.” Items were scored using a 5-point Likert-type scale with values ranging from *None* (1) to *All* (5). For the current study, the standardized Cronbach’s alpha for the disclosure behavior measure was 0.97.

Disclosure attitude. Disclosure attitude was operationalized by 14 items asking participants about their attitudes toward HIV disclosure to sexual partners. For example, “People with HIV should disclose their status to their sexual partners to whom they give oral sex without a condom.” Items were scored using a 4-point Likert-type scale with values ranging from *Strongly disagree* (1) to *Strongly agree* (4). The standardized Cronbach’s alpha for the disclosure attitude measure was 0.94 for the current study.

Disclosure intention. Disclosure intention was operationalized by 14 items asking participants about their intentions to disclose to their sexual partners. For example, “I plan to tell my future sexual partners to whom I give oral sex without a condom about my HIV status.” Items were scored using a 4-point Likert-type scale with values ranging from *Strongly disagree* (1) to *Strongly agree* (4). For the current study, the standardized Cronbach’s alpha for the disclosure intention measure was 0.95.

Self-efficacy for condom use. Self-efficacy for condom use was operationalized by three items asking participants about their self-perceived abilities in using a condom properly, every time he has penetrative sex and using a condom in any situation, for example, with different partners or in different places. For example, “I can use a condom every time I have penetrative

sex.”³⁶ Items were scored using a 4-point Likert-type scale with values ranging from *Strongly disagree* (1) to *Strongly agree* (4). The standardized Cronbach’s alpha for the self-efficacy for condom use measure was 0.73 for the current study.

Self-efficacy for disclosure. Self-efficacy for disclosure was operationalized by three items asking participants about their self-perceived abilities in disclosure of their HIV serostatus to their partners. Participants asked specifically about bringing up the topic of their HIV serostatus with a sexual partner, if they could disclose their HIV serostatus to all partners before engaging sex and if they could handle any sexual partner’s reaction to their HIV disclosure. For example, “I can disclose my HIV-positive serostatus to all partners before we engage in sex.”³⁶ Items were scored using a 4-point Likert-type scale with values ranging from *Strongly disagree* (1) to *Strongly agree* (4). For the current study, the standardized Cronbach’s alpha for the self-efficacy for disclosure measure was 0.87.

Self-efficacy for negotiation of safer sex practices. Self-efficacy for negotiation of safer sex practices was operationalized by three items asking participants about their self-perceived abilities in negotiating safer sex with their partners. Participants were asked specifically if they could bring up the topic of safer sex with any sexual partner, or negotiate condom use with any sexual partner, or negotiate mutual masturbation with any sexual partner. For example, “I can negotiate condom use with any sexual partner.”³⁶ Items were scored using a 4-point Likert-type scale with values ranging from *Strongly disagree* (1) to *Strongly agree* (4). The standardized Cronbach’s alpha for the measure for self-efficacy for negotiation of safer sex practices was 0.74.

Total scores for each measure were the sum scores of the 14 items for each disclosure measure for behavior, attitude, and intention, and of the three items for each self-efficacy for condom use, disclosure, and negotiation of safer sex practices. The mean scores for each measure was the mean score of all 14 items for each disclosure measure and of all three items for each self-efficacy measure.

Potential confounders

Potential confounders considered, based on review of the literature, have been found to be associated with disclosure and self-efficacy, and may differ by age group. Number of sexual partners is one measure, which accounts for majority of the variance in self-efficacy for condom use,³⁷ and self-efficacy has been found to be an important measure accounting for the variance in number of sexual partners.^{38,39} Time since diagnosis is statistically significantly associated with self-efficacy for chronic diseases,^{40,41} and has also been shown to be associated^{42–45} and correlated⁴⁶ with disclosure. Number of sexual partners was also associated with disclosure of HIV serostatus.⁴⁷ Differences in time since diagnosis⁴⁸ and number of sexual partners⁴⁹ have been found by age group. Therefore, the confounders considered in the current study were time since diagnosis and number of sexual partners in the past 30 days.

Analytic approach

The distribution of sociodemographic characteristics was examined in the overall population. Mean scores of

disclosure behavior, attitude and intentions, and of self-efficacy for condom use, disclosure, and negotiation of safer sex practices were determined based on sociodemographic characteristics.

For analyses examining the associations between age group, and disclosure and self-efficacy, participants were excluded if they were missing on age or if they had missing information, skipped, or responded “not applicable” on seven or more items of disclosure and self-efficacy measures. Simple and multiple linear regression models were used to determine the association between being older (aged 50 and older) and six outcome variables: disclosure behavior, disclosure attitude, discloser intention, self-efficacy for condom use, self-efficacy for disclosure, and self-efficacy for negotiation of safer sex practices. One set of regression models was used to compare adults aged 50 and older to adults 18–34 and the other set was used to compare adults aged 50 and older to adults 35–49.

To determine if potential confounders (time of diagnosis, and number of sexual partners in the past 30 days) confounded the association between being older and self-efficacy and disclosure measures, each confounder was placed in each model with each self-efficacy measure and disclosure measure as the outcome, and the exposure variable as being 50 years and older compared to being 18–34 years. Multiple linear regression models adjusted for time since diagnosis and number of sexual partners.

Results

Sociodemographic characteristics, mean scores and standard deviation (*SD*) values for disclosure behavior, attitudes and intentions, self-efficacy for condom use, disclosure and negotiation of safer sex practices for the overall study population are displayed in Table 1. Approximately 27% of the population were aged 18–34, 45% were aged 35–49, and 28% were 50 and older. The ranges for total scores for disclosure behavior, attitude, and intention were 1–56, 14–56, and 9–56, respectively (data not shown). The ranges for total scores for self-efficacy for condom use, disclosure and negotiation of safer sex practices were 3–12 for all three measures (data not shown).

Table 2 shows the mean scores and *SD* values for disclosure behavior, attitude and intention, and for self-efficacy for condom use, disclosure, and negotiation of safer sex practices by sociodemographic characteristics for the overall population. The mean scores and *SD*s for disclosure behavior were 3.66 (1.26), 3.60 (1.36), and 3.33 (1.37) for MSM aged 18–34, 35–49, and 50 and older, respectively. The mean scores and *SD*s for self-efficacy for negotiation of safer sex practices were 3.47 (0.59), 3.36 (0.67), and 3.26 (0.70), respectively. Overall, as age increased, the mean score of all outcome measures decreased except for the self-efficacy for disclosure measure.

Table 3 shows the association between being older (aged 50 and older) and disclosure behavior, attitude, and intention, self-efficacy for condom use, disclosure, and negotiation of safer sex practices using *total* scores of disclosure and self-efficacy measures. After adjusting for time since diagnosis and number of sexual partners in the past 30 days, MSM aged 50 and older, on average, scored 7 points lower (adjusted $\beta = -7.49$; adjusted 95% CI: $-14.8, -0.18$) in total scores for disclosure behavior and approximately 1 point lower (adjusted $\beta = -0.80$; adjusted 95% CI: $-1.57, -0.04$) in total

TABLE 1. SOCIODEMOGRAPHIC CHARACTERISTICS AND MEAN SCORES OF DISCLOSURE FOR BEHAVIOR, ATTITUDE AND INTENTION, AND FOR SELF-EFFICACY FOR CONDOM USE, DISCLOSURE, AND NEGOTIATION FOR SAFER SEX PRACTICES FOR STUDY POPULATION

<i>Characteristics</i>	<i>n</i>	<i>%</i>
Age		
18–34	92	27.2
35–49	151	44.7
50 and older	95	28.1
Race		
Black	133	39.4
White	180	53.2
Other	25	7.4
Ethnicity		
Hispanic	31	9.17
Non-Hispanic	284	84.02
Education		
Some high school	35	10.4
Finished high school	79	23.4
Some college	147	43.5
Finished college or advanced degree	77	22.8
Income (\$)		
\$0–\$500	102	30.2
\$501–\$1000	96	28.4
\$1001–\$1500	70	20.7
\$1501–\$2000	40	11.8
\geq \$2001	30	8.9
Employment		
Employed	103	30.5
Unemployed	235	69.5
	<i>Mean</i>	<i>SD</i>
Disclosure measures		
Behavior	3.54	1.34
Attitudes	3.27	0.60
Intention	3.25	0.62
Self-efficacy measures		
Condom use	3.52	0.60
Disclosure	3.03	0.87
Negotiation for safer sex	3.36	0.66

scores for self-efficacy for negotiation of safer sex practices compared to MSM aged 18–34.

Before adjustment for confounders, crude models showed that older MSM, on average, scored 4 points lower ($\beta = -3.63$; 95% CI: $-6.19, -1.06$) and 2 points lower ($\beta = -2.38$; 95% CI: $-4.61, -0.15$) on total disclosure attitude scores compared to MSM 18–34 and 35–49, respectively. Compared to MSM aged 18–34, MSM aged 50 and older also scored, on average, approximately 5 points lower ($\beta = -5.35$; 95% CI: $-8.20, -2.49$) and 1 point lower ($\beta = -0.74$; 95% CI: $-1.24, -0.24$) on total scores for disclosure intention and self-efficacy for condom use, respectively. However, after adjustment for time since diagnosis and number of sexual partners in the past 30 days, these associations were attenuated so that related confidence intervals included unity.

The association between being aged 50 and older, and *mean* scores for disclosure behavior, attitude and intentions, and self-efficacy for condom use, disclosure, and negotiation

TABLE 2. SOCIODEMOGRAPHIC CHARACTERISTICS AND MEAN SCORES OF DISCLOSURE FOR BEHAVIOR, ATTITUDE AND INTENTION, AND FOR SELF-EFFICACY FOR CONDOM USE, DISCLOSURE, AND NEGOTIATION FOR SAFER SEX PRACTICES FOR STUDY POPULATION

Characteristics	Mean (SD)					
	Disclosure			Self-efficacy		
	Behavior	Attitude	Intention	Condom use	Disclosure	Negotiation
Age						
18–34	3.66 (1.26)	3.39 (0.57)	3.38 (0.59)	3.66 (0.50)	2.93 (0.90)	3.47 (0.59)
35–49	3.60 (1.36)	3.27 (0.59)	3.24 (0.61)	3.51 (0.62)	3.11 (0.87)	3.36 (0.67)
50 and older	3.33 (1.37)	3.15 (0.63)	3.14 (0.63)	3.41 (0.64)	3.00 (0.82)	3.26 (0.70)
Race						
Black	3.13 (1.42)	3.29 (0.61)	3.25 (0.62)	3.64 (0.54)	2.80 (0.90)	3.42 (0.66)
White	3.81 (1.19)	3.24 (0.60)	3.24 (0.61)	3.44 (0.62)	3.20 (0.78)	3.32 (0.67)
Other	3.72 (1.36)	3.36 (0.59)	3.33 (0.67)	3.45 (0.71)	2.97 (1.00)	3.36 (0.58)
Ethnicity						
Hispanic	3.94 (1.31)	3.29 (0.64)	3.28 (0.65)	3.52 (0.61)	3.10 (0.96)	3.28 (0.78)
Non-Hispanic	3.54 (1.33)	3.26 (0.60)	3.24 (0.62)	3.50 (0.61)	3.01 (0.86)	3.35 (0.65)
Education						
Some high school	3.50 (1.18)	3.30 (0.49)	3.32 (0.50)	3.60 (0.62)	3.20 (0.86)	3.31 (0.61)
Finished high school	3.55 (1.29)	3.29 (0.63)	3.19 (0.62)	3.45 (0.67)	2.80 (0.97)	3.36 (0.68)
Some college	3.56 (1.46)	3.30 (0.63)	3.34 (0.64)	3.57 (0.55)	3.11 (0.83)	3.44 (0.59)
Finished college ^a	3.50 (1.23)	3.16 (0.56)	3.11 (0.59)	3.46 (0.63)	3.03 (0.78)	3.23 (0.77)
Income						
\$0–\$500	3.40 (1.39)	3.30 (0.62)	3.28 (0.60)	3.61 (0.55)	3.07 (0.89)	3.45 (0.62)
\$501–\$1000	3.48 (1.36)	3.29 (0.61)	3.24 (0.62)	3.48 (0.71)	2.90 (0.95)	3.27 (0.67)
\$1001–\$1500	3.53 (1.30)	3.23 (0.57)	3.22 (0.61)	3.52 (0.48)	3.00 (0.82)	3.34 (0.60)
\$1501–\$2000	3.76 (1.26)	3.23 (0.61)	3.28 (0.69)	3.49 (0.64)	3.09 (0.78)	3.50 (0.64)
≥\$2001	3.88 (1.23)	3.26 (0.58)	3.21 (0.60)	3.39 (0.61)	3.32 (0.65)	3.19 (0.86)
Employment						
Employed	3.70 (1.34)	3.30 (0.58)	3.28 (0.60)	3.52 (0.57)	2.96 (0.81)	3.35 (0.65)
Unemployed	3.46 (1.33)	3.25 (0.61)	3.24 (0.62)	3.52 (0.62)	3.06 (0.89)	3.36 (0.67)

^aFinished college or advanced degree.

for safer sex practices are shown in Table 4. After adjusting for time since diagnosis and number of sexual partners in the past 30 days, on average, men aged 50 years old and older scored approximately 0.3 points lower in self-efficacy for negotiation for safer sex practices (adjusted $\beta = -0.27$; 95% CI: $-0.52, -0.01$).

However, before adjustment for confounders, compared to MSM aged 18–34, MSM aged 50 and older, on average, scored 0.2 points lower in the mean scores for disclosure attitude ($\beta = -0.23$; 95% CI: $-0.41, -0.06$), intention ($\beta = -0.24$; 95% CI: $-0.41, -0.06$), and self-efficacy for condom use ($\beta = -0.25$; 95% CI: $-0.41, -0.08$). However, adjusting for time since diagnosis

TABLE 3. ASSOCIATION BETWEEN BEING OLDER (AGE 50 AND OLDER, $N=95$), AND DISCLOSURE BEHAVIOR, ATTITUDE AND INTENTION, AND SELF-EFFICACY FOR CONDOM USE, DISCLOSURE AND NEGOTIATION OF SAFER SEX PRACTICES USING TOTAL SCORES

Measures	Compared to 18–34 (n=92)				Compared to 35–49 (n=151)			
	β	95% CI	Adjusted β^a	Adjusted 95% CI ^a	β	95% CI	Adjusted β^a	Adjusted 95% CI ^a
Disclosure behavior	-4.42	-9.67, 0.83	-7.49	-14.8, -0.18	-3.95	-8.69, 0.78	-3.69	-8.64, 1.26
Disclosure attitude	-3.63	-6.19, -1.06	-2.98	-6.56, 0.59	-2.38	-4.61, -0.15	-1.53	-3.80, 0.74
Disclosure intention	-5.35	-8.20, -2.49	-3.72	-7.88, 0.44	-2.31	-4.86, 0.24	-1.53	-4.16, 1.09
Self-efficacy for condom use	-0.74	-1.24, -0.24	-0.46	-1.15, 0.23	-0.28	-0.77, 0.20	-0.22	-0.72, 0.29
Self-efficacy for disclosure	0.21	-0.54, 0.95	0.22	-0.81, 1.25	-0.32	-0.98, 0.33	-0.26	-0.92, 0.40
Self-efficacy for negotiation ^b	-0.66	-1.22, -0.09	-0.80	-1.57, -0.04	-0.30	-0.82, 0.23	-0.33	-0.86, 0.21

^aAdjusted for time since diagnosis and number of sexual partners in the past 30 days.

^bSelf-efficacy for negotiation of safer sex practices.

β estimates and 95% CIs in bold are statistically significant at $p < 0.05$.

TABLE 4. ASSOCIATION BETWEEN BEING OLDER (AGE 50 AND OLDER, $n=95$), AND DISCLOSURE BEHAVIOR, ATTITUDE AND INTENTION, AND SELF-EFFICACY FOR CONDOM USE, DISCLOSURE, AND NEGOTIATION OF SAFER SEX PRACTICES USING MEAN SCORES

Measures	Compared to 18–34 ($n=92$)				Compared to 35–49 ($n=151$)			
	β	95% CI	Adjusted β^a	Adjusted 95% CI ^a	β	95% CI	Adjusted β^a	Adjusted 95% CI ^a
Disclosure behavior	-0.28	-0.69, 0.14	-0.51	-1.09, 0.07	-0.26	-0.64, 0.12	-0.22	-0.62, 0.17
Disclosure attitude	-0.23	-0.41, -0.06	-0.19	-0.43, 0.05	-0.12	-0.28, 0.04	-0.06	-0.22, 0.10
Disclosure intention	-0.24	-0.41, -0.06	-0.09	-0.35, 0.16	-0.08	-0.24, 0.08	-0.01	-0.18, 0.15
Self-efficacy for condom use	-0.25	-0.41, -0.08	-0.15	-0.38, 0.08	-0.09	-0.26, 0.07	-0.07	-0.24, 0.10
Self-efficacy for disclosure	0.07	-0.18, 0.32	0.07	-0.27, 0.41	-0.11	-0.33, 0.11	-0.09	-0.31, 0.13
Self-efficacy for negotiation ^b	-0.22	-0.41, -0.03	-0.27	-0.52, -0.01	-0.10	-0.27, 0.08	-0.11	-0.29, 0.07

^aAdjusted for time since diagnosis and number of sexual partners in the past 30 days.

^bSelf-efficacy for negotiation of safer sex practices.

β estimates and 95% CIs in **bold** are statistically significant at $p < 0.05$.

and number of sexual partners in the past 30 days attenuated these associations so that the related confidence intervals included unity. There were no statistically significant results seen comparing MSM aged 50 and older to MSM aged 35–49.

Discussion

The current study examined disclosure behavior, attitude, and intention and self-efficacy for condom use, disclosure, and negotiation for safer sex practices among HIV-positive MSM 50 years old and older compared to middle-aged (35–49) and younger (18–34) HIV-positive MSM. The findings showed that older MSM scored lower on disclosure behavior and self-efficacy for negotiation of safer sex practices compared to MSM 18–34.

The current findings that older MSM scored lower on disclosure behavior are supported by prior research. Dankoli et al. showed that HIV-positive patients in a secondary medical center in North-Eastern Nigeria who were less than 40 years old were more likely to disclose their serostatus compared to adults 40 years and older.¹⁴ However, another study showed that in Bangkok, Thailand, relatively older HIV-positive MSM aged 27–32 were more likely to disclose compared to HIV-positive MSM 26 years old and younger.¹⁵ The studies by Dankoli et al.,¹⁴ and Edwards-Jackson et al.,¹⁵ used 40 years and older, and 27–32 years to define “older adults”, respectively, while the current study used 50 and older to refer to “older” MSM living with HIV. This variation in the operationalization of age groups, study populations, and income levels of the countries prevents direct comparison of results to findings from the current study. Nevertheless, the difference in findings suggest that the association between age and HIV disclosure may differ depending on the way in which age is operationalized, the manner in which “older” is defined, and the study population.

The average decrease in scores among older MSM for disclosure behavior may be due to fear of isolation. Prior research has also shown that HIV-related stigma, especially fear of isolation, influences serostatus disclosure.⁵⁰ Older MSM may have greater fears of losing their sexual partners, even though these partners may be casual. As a result of being

older and living with HIV, older MSM may fear isolation and may believe that they have fewer options for new partners compared to younger MSM.

The differences in scores for disclosure behavior found in the current study may also be due to age-cohort effects, related internal stigma, and discrimination older MSM may perceive from their communities. Specific cohorts may experience distinct factors due to different socio-historical contexts.⁵¹ Different life periods such as young adulthood, middle-age, and older adulthood present developmental characteristics specific to each life period⁵¹ especially in the context of living with HIV.

Cahill and Valadéz stated that there are significant differences between a 50-year-old person living with HIV/AIDS and a 75-year-old person living with HIV/AIDS.⁵² Also, a 25-year-old person who has been recently infected with HIV will perhaps have a different experience than a 75-year-old who was infected in the 1980s. MSM aged 18–34 were born during a time when HIV was already or newly discovered compared to the older age groups. Older MSM were born into an era where HIV had been discovered several years after they were born. Hence, older MSM were living in a period of more uncertainty surrounding an HIV diagnosis. Therefore, older MSM with HIV may disclose less frequently due to the three-fold discrimination they may experience: discrimination due to being older, being HIV-positive, and having same-sex partners. Nevertheless, the findings suggest that even after controlling for confounders including time since diagnosis, the differences in scores for disclosure behavior were still statistically significant.

Older MSM also scored lower on self-efficacy for negotiation of safer sex practices than their younger counterparts. Older MSM may not be self-confident in negotiating with sexual partners due to fear of offending sexual partners or a fear of isolation and rejection. Negotiating safer sex practices such as use of condoms may also be more normative among younger MSM populations compared to older MSM populations. Research has shown that the ability to negotiate condom use was a stronger factor associated with condom use than actual self-efficacy for condom use.⁵³ Semple et al. showed that among HIV-positive MSM, those who abstained from anal sex and those who had unprotected sex also scored low on sexual negotiation.⁵⁴ Therefore,

improving self-efficacy, especially for negotiation of safer sex practices, especially among older MSM may lead to more condom use and reduction in HIV transmission among this population.

The current study did not elicit a statistically significant association between being older and self-efficacy for condom use in adjusted models. These results support findings from Prati et al.,¹⁸ who found that there were no statistically significant differences in scores on perceived behavioral control (an individual's perception of his/her condom use ability) between older adults aged 50–59 and younger adults aged 18–49. However, the study showed that older adults aged 60–75 scored lower on perceived behavioral control compared to younger adults aged 18–49. The population in the study by Prati and colleagues included a sample of Italian men and women and also operationalized older age groups into 50–59 and 60–75 years, which could not be done in the current study due to limited sample size. These differences in findings underscore the importance of larger sample sizes for studies on older adults so that differences in behavioral outcomes, such as self-efficacy for condom use, may be determined.

The social cognitive theory proposed by Bandura¹⁹ suggesting that personal, behavioral, and environmental factors interact to impact each other, also supports the concept of age-cohort effects and the related stigma and discrimination that MSM may face. Personal factors such as self-perceived stigma and discrimination, behavioral factors such as disclosure and self-efficacy (or a lack thereof), and environmental factors such as lack of discussion of sexual health from healthcare providers, and the stigma and discrimination in the men's surrounding environment may interact to contribute to the association between age, and disclosure behavior and self-efficacy, especially among this population.

The current study had some limitations that should be considered. First, some questions on disclosure measures were not applicable to all study participants. Participants who had missing information, skipped, or responded "not applicable" on seven or more items were excluded from the analysis. Therefore, results including disclosure measures should be interpreted with caution. Study participants were recruited from two MSA areas and results may not be generalizable to all HIV-positive MSM populations. We were also unable to examine disclosure behavior and self-efficacy among older age groups such as 65 and older or 75 and older due to limited sample size of study participants in these age categories. However, the age group of 50 and older has been used by the CDC⁷ and numerous other studies^{31–35} to examine outcomes among "older" populations living with HIV.

Nevertheless, the study also had some strengths. The study examined three different age cohorts of MSM, comparing men aged 50 and older to men 35–49 and men 18–34. This analysis enabled the comparison of older HIV-positive MSM to middle-aged MSM, and to younger MSM. The current study also examined multiple outcomes and assessed associations using the total scores and mean scores of measures. Using the mean scores in addition to the total scores of outcome measures helped to highlight those associations that were statistically significant regardless of the way in which the outcome was operationalized.

Intervention and prevention programs should endeavor to improve disclosure behavior and self-efficacy, especially for negotiating safer sex practices among older HIV-positive MSM. Indeed, improving disclosure and self-efficacy among

MSM may help to reduce HIV transmission rates especially among older MSM populations. Health care providers should also play a role in initiating sexual health discussions among older HIV-positive MSM populations. These discussions should include strategies to increase disclosure of serostatus to sexual partners and to improve their self-efficacy in negotiating safer sex practices.

Disclosure interventions focused on improving disclosure attitudes and disclosure intentions should target MSM populations irrespective of age, as the associations between age, and disclosure attitude and intention were not statistically significant. Future studies should examine disclosure attitudes and intentions among older populations and should also determine differences and similarities among even older populations (65 years old and older). More longitudinal studies are needed to determine if similar associations between age and disclosure and self-efficacy measures will be seen overtime.

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