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Regular clinic attendance in two large San Francisco HIV primary care settings

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ABSTRACT

Although poor clinic attendance is associated with increased morbidity and mortality among HIV-infected individuals, less is known about predictors of retention and the acceptability of targeted interventions to increase regular clinic attendance. To better understand which patients are at risk for irregular clinic attendance and to explore interventions to aid in retention to care, we surveyed patients attending two outpatient HIV clinics affiliated with the University of California, San Francisco. A total of 606 participants were surveyed, and the analysis was restricted to the 523 male respondents. Of this group, 45% (N = 299) reported missing at least one visit a year. Missing a clinic visit was associated with being African American (aOR = 1.99; 95%CI 1.12–3.52), being a man who has sex with both men and women (aOR=2.72; 95%CI 1.16–6.37), and reporting at least weekly methamphetamine use (aOR=5.79; 95%CI 2.47–13.57). Participants who reported a monthly income greater than $2000 were less likely to miss an appointment (aOR = 0.56; 95%CI 0.34–0.93). Regarding possible retention interventions, most patients preferred phone calls over other forms of support. These findings support the need for ongoing engagement support with particular attention to at-risk sub-groups.

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Introduction

Although there is a body of literature documenting the importance of timely entry into HIV care and early retention in care (Mugavero, Castellano, Edelman, & Hicks, 2007), less is known about the factors that contribute to stable engagement in care.

As of 2013, it was estimated that over 50% of HIV-infected patients in the US were not in medical care either because they had not initiated care or because they had been lost-to-follow-up (Mugavero, Amico, Horn, & Thompson, 2013). At the University of Alabama at Birmingham's HIV clinic, 60% of patients missed at least one visit within the first year of initiating HIV treatment; irregular clinic attendance was associated with twice the rate of long-term mortality when compared to attendance at all clinic appointments (Mugavero, Lin, Willig et al., 2009). In contrast, visit consistency in HIV care has been associated with decreased viral load, fewer adverse clinical events, and less mortality (Mitchell, Morris, Kent, Stansell, & Klausner, 2006). Prior studies have suggested that female patients, younger patients, and ethnic minorities are at higher risk for loss-to-follow-up (Gardner et al., 2005; Mugavero, Lin, Allison et al., 2009; Mugavero et al., 2013; Ulett et al., 2009). Limited data exist regarding the impact of various appointment reminder aids; however, interim visit calls, appointment reminder calls, and enhanced face-to-face time all seem to increase retention to care (Gardner et al., 2014). To identify predictors of poor attendance and to assess the acceptability of various strategies to improve clinic attendance within our study population, we surveyed patients seen at two large HIV primary care clinics.

Methods

Our study methods were similar to those used by Marquez et al., Clark et al., and Mitchell et al., all of whom used the same core-survey data collection instrument and sampling frame (Clark, Marquez, Hare, John, Klausner, 2012; Marquez, Mitchell, Hare, John, & Klausner, 2009; Mitchell et al., 2006). Between September 2013 and March 2014, trained study volunteers distributed a one-page paper anonymous self-administered survey in the waiting rooms of two academic-affiliated outpatient HIV clinics in San Francisco: one at a county hospital

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serving a largely low-income, population (County) and one at a university hospital primarily serving patients with private insurance (University). Prior survey instruments were modified to include questions about clinic attendance (Clark et al., 2012; Marquez et al., 2009; Mitchell et al., 2006). On average, frequency of follow-up appointments varied widely between weekly to yearly at both clinics.

Human subjects review

The survey was reviewed by the University of California, San Francisco Human Research Protection Program (reference number 12–10051) and identified as non-research public health practice per the Code of Federal Regulations, Title 45, Part 46: The Public Service Act.

Statistical analysis

Data were entered and stored in a spreadsheet (Microsoft Excel, Microsoft Cooperation, 2010) and analyzed using STATA12 (StataCorp, 1999).

Outcomes and exposures

Outcomes included missed visits, defined as: never missing a clinic visit in a year, or missing at least one visit in a year. We also gathered information on exposures and covariates: demographics (including "race/ethnicity"), sexual activity, and frequency of methamphetamine use. Regarding preferences for engagement support, we asked participants about acceptability of phone call reminder aids, text message reminder aids, case mangers co-attending visits, or gift card incentives.

Analysis

We analyzed our data using Chi-square, Fisher's exact, and Wilcoxon rank-sum tests, as appropriate. Variables with a p-value less than or equal to .1 in univariable logistic regression analyses were included in a multivariable logistic regression model. In the multivariable model, we considered a variable to be statistically significant if the two-sided p-value was below .05.

Results

A total of 606 participants were surveyed, 222 at the University clinic, and 384 at the County clinic. Between the two sites, 86% of respondents were men ($N = 523$), 2% were transwomen (15), 10% were women (63), and 0.5% were identified as transmen (Table 1). Given the low number of women, transwomen, and transmen, we restricted the analysis to men.

Missed appointments

Forty-five percent ($N = 299$) of male patients surveyed in the waiting room of each clinic reported missing at least 1 visit in a year (20% reported missing 2–3 visits; 9% missing 4 or more visits).

Multivariable analysis: predictors of irregular clinic attendance

The results of the multivariable logistic regression models are presented in Table 2. Reporting at least one missed visit in a year was associated with being African American (adjusted odds ratio (aOR) = 1.99; 95%confidence interval (CI) 1.12–3.52), having sex with both

Table 1. Basic demographic information reflecting all men ($N = 523$) surveyed at University- and County-based HIV clinics between September 2013 and March 2014.

	Never missed an appointment in a year (%)	Total number of patients within the subgroup
Clinic		
County		
University		
Age†		
19–39 years	38 (31)	124
40–49 years	71 (43)	164
50–55 years	55 (47)	118
56 years or older	58 (51)	113
Declined to state	2 (50)	4
Race/ethnicity†		
White	117 (48)	246
Asian	13 (62)	21
African American	36 (33)	109
Latino	34 (40)	85
Mixed	72 (28)	39
Other	11 (55)	20
Gender		
Men	224 (43)	523
Sexual partners		
Men only	177 (47)	375
Women only	26 (31)	85
Both men and women	8 (20)	40
Declined to state	13 (57)	23
Race/ethnicity		
White	117 (48)	246
Asian	13 (62)	21
African American	36 (33)	109
Latino	34 (40)	85
Mixed	11 (28)	39
Other	11 (55)	20
Decline to state	2 (67)	3
Monthly income		
<$2000	152 (38)	399
>$2000	67 (60)	112
Decline to state	5 (42)	12
Methamphetamine use in the last 4 weeks†		
None	125 (58)	216
At least once	97 (33)	296
Declined to state	2 (18)	11

Note: p-values calculated using Chi-square tests for characteristics above, with the exception of those with a † symbol, which used Fisher's exact tests.

Table 2. Univariable and multivariable logistic regression: adjusted odds ratio of missing a clinic visit in a year based on data obtained from male participants surveyed at University- and County-based HIV clinics between September 2013 and March 2014 (number of observations = 469).

	Univariable logistic regression			Multivariable logistic regression			
Variable	Odds ratio	(95%CI[a])	*p*-value	Adjusted odds ratio	(95%CI)	*p*-value	Overall *p*-value[e]
Clinic							
UCSF (ref.)	1.00	–	–	1.00	–	–	
County clinic	2.13	(1.45–3.14)	.00	1.39	(0.90–2.16)	.14	.14
Age (years)	0.97	(0.95–0.99)	.00	**0.98**	**(0.96–0.99)**	**.047**	.047
Race/Ethnicity							
White (ref.)	1.00	–	–	1.00	–	–	
Asian/Pacific Islander	0.63	(0.25–1.59)	.33	0.76	(0.28–2.08)	.59	.20
African American	2.11	(1.28–3.51)	.00	**1.99**	**(1.12–3.52)**	**.02**	
Hispanic/Latino	1.26	(1.12–2.14)	.38	1.30	(0.74–2.30)	.36	
Mixed	2.51	(1.12–5.63)	.03	1.75	(0.74–4.15)	.20	
Other	0.94	(0.36–2.46)	.90	1.13	(0.40–3.19)	.81	
Sexual behavior							
MSM[b] (ref.)	1.00	–	–	1.0	–	–	.04
MSW[c]	2.09	(1.21–3.60)	.008	1.54	(0.84–2.82)	.08	
MSMW[d]	3.45	(1.54–7.73)	.00	**2.72**	**(1.16–6.37)**	**.02**	
Monthly Income							
Less than $2000 (ref.)	1.00	–	–	1.0			
More than $2000	0.36	(0.23–0.56)	.00	**0.56**	**(0.34–0.93)**	**.03**	.03
Methamphetamine Use							
None (ref.)	1.00	–	–	1.0	–	–	<.001
Less than weekly use	2.37	(1.26–4.49)	.00	**1.95**	**(1.00–3.81)**	**.049**	
At least weekly use	6.92	(3.05–15.69)	.00	**5.79**	**(2.47–13.57)**	**<.001**	

Note: Bold text denotes statistically significant findings.
[a]Confidence interval (CI).
[b]Men who have sex with only men (MSM).
[c]Men who have sex with only women (MSW).
[d]Men who have sex with both men and women (MSMW).
[e]Wald test *p*-value.

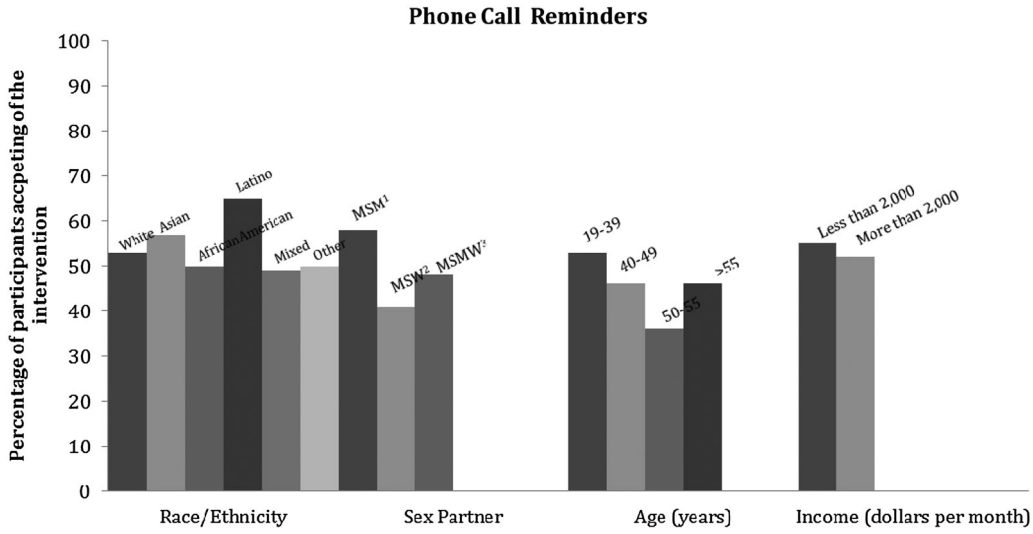
men and women (aOR = 2.72; 95%CI 1.16–6.37), younger age (aOR = 0.98; 95%CI 0.96–0.99), and at least weekly methamphetamine use (aOR = 0.56; 95% CI 2.47–13.57). Methamphetamine use had a dose-dependent relationship to missed-clinic visits, with increased use associated with a higher adjusted odds ratio of missing at least one appointment in a year (Table 2). Those who reported a monthly income greater than $2000 were less likely to miss an appointment (aOR = 0.56; 95%CI 0.34–0.93).

Preferences for engagement support

Eighty-six percent of patients ($n = 448$) reported wanting some type of engagement support. Most patients preferred reminder phone calls over other forms of support to remain engaged in care (Figure 1). Fifty-four percent of participants ($n = 283$) reported phone reminders to be acceptable. Thirty-seven percent ($n = 195$) reported text message reminders as acceptable (Figure 2). Only 8% ($n = 46$) thought that navigation or case-management interventions would be helpful (Figure 1). A quarter of participants ($n = 131$) thought that gift card as reimbursements for attending clinic visits would be helpful reminder aids. In bivariate analysis, those with incomes lower than $2000 a month preferred "getting a gift card" when compared to those who had incomes above $2000 a month (*p*-value of .014).

Discussion

We found that nearly half of HIV-infected male patients waiting to see a provider in HIV clinics reported missing at least one visit in a year. Being African American, reporting sex with both men and women, having a lower income, being younger, and reporting methamphetamine use were independently associated with a higher aOR of missing at least one appointment in a year when compared to white men with incomes > $2000 a month, who did not use methamphetamines. Those results are consistent with, and expand upon, prior studies that associated race and lower socioeconomic status as well as illicit drug use with poor retention to care (Gardner et al., 2014; Mugavero, Lin et al., 2007). Our results are also supported by prior data suggesting that men who have sex with both men and women are a particularly vulnerable group with increased risk for sexually transmitted infections when compared to men who have sex with only women and men who have sex with only men (Friedman et al., 2014; Jeffries, 2014). Those findings, taken together with our data, suggest that men who sex with both men and women may

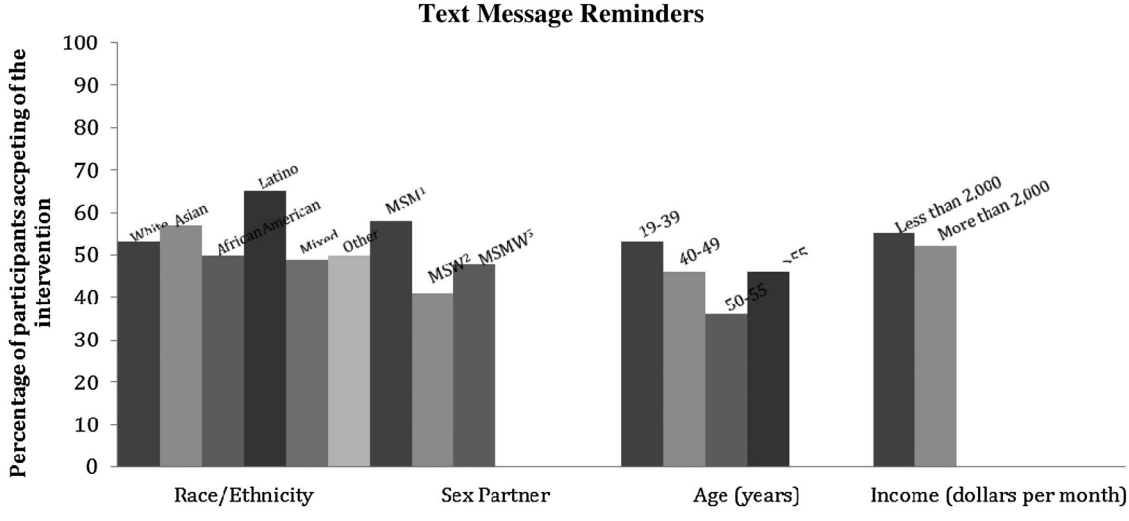


[1] Men who have sex with men
[2] Men who have sex with women
[3] Men who have sex with men and women

Figure 1. Acceptability of phone calls as reminder aids as reported by men ($N = 523$) surveyed at University- and County-based HIV clinics between September 2013 and March 2014 by: race/ethnicity, type of sex partner, age group, and income.

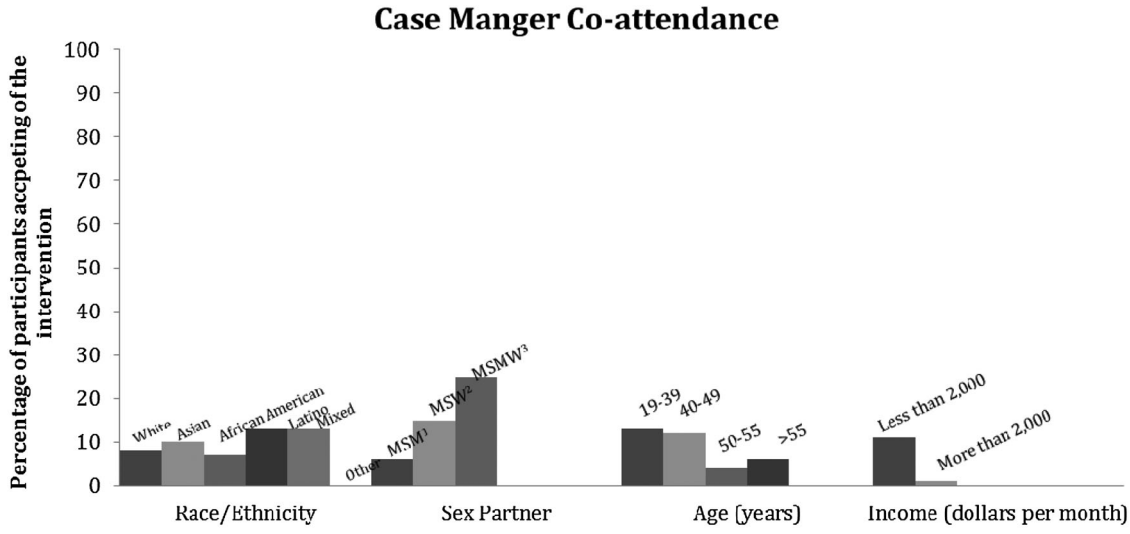
benefit from tailored efforts around retention to care and harm reduction.

Our data suggest that low-cost appointment reminders in the form of text message or telephone calls would be well-accepted by our study participants, regardless of ethnicity or age. However, it should be noted that roughly half of participants did not think that these methods of outreach would be useful and thus our findings should be interpreted with caution. Participants earning less than $2000 a month may respond to reminder gift-cards. The majority of patients were not interested in having patient advocates or in having navigators accompany them to clinic visits (Figure 3). However, a very small number of men who have sex with both men and women demonstrated at the county clinic a preference for this potential intervention. Given that men who have sex with men and women are a high-risk group, this type of intervention may be



[1] Men who have sex with men
[2] Men who have sex with women
[3] Men who have sex with men and women

Figure 2. Acceptability of text messages as reminder aids reported by men ($N = 523$) surveyed at University- and County-based HIV clinics between September 2013 and March 2014 by: race/ethnicity, type of sex partner, age group, and income.



[1] Men who have sex with men
[2] Men who have sex with women
[3] Men who have sex with men and women

Figure 3. Acceptability of case managers also attending clinic visits to increase clinic attendance reported by men ($N = 523$) surveyed at University- and County-based HIV clinics between September 2013 and March 2014 by: race/ethnicity, type of sex partner, age group, and income.

worthwhile exploring, even though it was not found to be acceptable to the majority of patients.

Our study has several limitations. First, by surveying patients in clinic waiting rooms, we did not capture those at highest risk of poor adherence. Second, demographic characteristics associated with missed appointments may be confounded by numerous factors that were not measured in our survey. Our survey data were based on self-report, which may be subject to social desirability and recall biases, given that we asked patients about behaviors over the last year. Additionally participants may have had varied interpretations of the phrase "missed an appointment", with some respondents considering a canceled or re-scheduled visit "missed". Men who have sex with both men and women, as well as transmen and transwomen were not well represented in this study, and so our findings should not be seen as representative of these groups. Finally, many patients surveyed had received a reminder phone call prior to arriving in the waiting room, which may have biased their judgment as to the most effective retention interventions.

Conclusion

This study adds to the discourse on engagement in HIV care by demonstrating a high frequency of missed appointments for HIV-infected individuals among African American men who have sex with men and women and those who use methamphetamines, and by revealing the acceptability of simple interventions to increase regular clinic attendance. Our data corroborate prior studies in which low-cost interventions such as brochures, posters, and discussions by clinicians increased clinic attendance (Gardner et al., 2012). We found that lower-cost interventions such as text messages are desirable, and that more expensive, navigation-based interventions may be more appropriate if delivered in a manner focused to engage populations at particularly high-risk for clinic non-attendance. Based on our findings, utilization of "navigation-based" interventions such as community engagement campaigns may be useful to better understand barriers to clinic retention among high-risk groups. Additional work is needed to reach patients who have fallen out of care to better understand difficulties around clinic-retention.

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Disclosure statement

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