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Joana Rosales De Oliveira Date

Cost Benefit Analysis of Recruitment Techniques to Enroll MSM in Atlanta, GA

By

Joana Rosales De Oliveira

Master of Public Health

Epidemiology

_____

Jodie L. Guest, Ph.D., MPH

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An abstract of

A thesis submitted to the Faculty of the
Rollins School of Public Health of Emory University

in partial fulfillment of the requirements for the degree of
Master of Public Health in Epidemiology

2018

ABSTRACT

Cost Benefit Analysis of Recruitment Techniques to Enroll MSM in Atlanta, GA

By Joana Rosales De Oliveira

HIV is a major public health concern among men who have sex with men (MSM). Data on cohort recruitment techniques and associated costs have not been well examined. We looked at three recruitment techniques (electronic, in-person and print) used to enroll eligible MSM with HIV into the Engage[MEN]t study in Atlanta, Georgia. Cost-data was calculated per recruitment method and cost per enrolled participant was analyzed by race and age. In-person recruitment was the most expensive per enrolled participant, and white/Caucasians and those older than 50 years were more expensive to recruit. These data provide estimates that can be used for budgeting, grant writing and determining where and when to allocate resources to enroll harder to reach participants.

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TABLE OF CONTENTS

INTRODUCTION

HIV, the virus that causes AIDS, is one of the world's most serious health challenges. According to UNAIDS, there were approximately 36.7 million people worldwide living with HIV/AIDS in 2016 (1). An estimated 1.8 million people became newly infected with HIV and one million people died from AIDS-related illnesses (1). UNAIDS has reported a major milestone in that nearly 21 million people were accessing antiretroviral therapy in June 2017 (1). Despite these advancements in access to care, HIV infection rates remain high especially in low- and middle- income countries and among men who have sex with men (MSM) (2-4). MSM are a key risk group in the United States and are disproportionately impacted in terms of HIV prevalence and incidence (5, 6).

For years, disparities in HIV prevalence and incidence among black and whites have been recognized. In 2006, Millet reported possible reasons that black MSM might be at greater risk of HIV infection (7). They found that high rates of HIV infection for black MSM were partly attributable to a high prevalence of sexually transmitted diseases that facilitate HIV transmission and to undetected or late diagnosis of HIV infection (7). Disparities between black and whites is also seen in studies that suggest poor disease outcomes may be related to lack of early testing inadequate access to early treatment (8). Since there is evidence of disparities among blacks and white in acquiring new HIV infections, recruiting black MSM participants into an HIV study is critical.

Studies show that age is a factor in HIV infection and it is relevant to explore its connection to recruitment. Hall et al found that young MSM are at elevated risk for adverse sexual health outcomes and those between the ages of 13-24 years have seen an increase in HIV infection (8). This study aims to provide greater understanding of the

factors underlying the disparities in recruitment. Recruitment can play a vital role in research. It is important to note that in order to successfully recruit participants, we must first understand their willingness to participate (WTP). Several studies have looked at WTP and Perisse et al found that altruism was the primary reason given for willingness to participate (9). They also found that low education, and low income were positively associated with WTP (9). Similarly, Dhalla and Poole found that personal benefits such as monetary incentives as well as social benefits including different forms of altruism increased WTP (10). In addition, Doshi et al found that perceived benefits and awareness of current research were found to influence WTP (11).

Even though recruitment is a vital component of any study, there are few details and information on recruitment procedures published in the literature. Recruitment of community-based participants for research purposes is becoming increasingly difficult. On the other hand, technologically-based approaches to recruitment of community-based samples are consequently becoming more common. For example, the use of the internet for recruitment provides many advantages including efficiency of identifying and screening a large number of participants, and targeting understudied populations. Although one can use the internet to recruit for a fully internet-based study, Fernandez et al also showed that one can use the internet to recruit participants for community-based studies as well (12). There are some published studies examining the effectiveness of recruitment techniques for intervention trials. Mckee et al found that different recruitment techniques targeted different subgroups of MSM (13). They found that in-person recruitment at gay venues was successful at recruiting a younger demographic, while HIV-positive MSM were more likely to be reached through the internet. They also found

that print was the better recruitment tool for Latinos as well as HIV-positive MSM (13). In a study recruiting MSM in six US epicenters through the use of several recruitment techniques, they found that friend referral resulted in the most participants, print advertisement was successful at recruiting non-Hispanic white MSM and HIV-negative participants, while those recruited on-line were less likely to attend the intervention (14). The EXPLORE study aimed at recruiting participants with high risk of HIV infection, found that younger men and men of color were more likely to be recruited at clubs or bars, while those reporting more sexual partners were recruited through advertising and those reporting unprotected sex were recruited by clinic referrals (15). These findings support the use of different recruitment techniques to target MSM at high risk for HIV.

It is important to recognize that recruitment could be affected by several factors, including race, Socio-Economic Status (SES), social stigma, and location. Engage[MEN]t seeks to document factors associated with key HIV care indicators for MSM, and to explain racial disparities in effective HIV care and prevention of men living in Atlanta. This study is making use of several recruitment techniques including: recruitment in physical venues, events with high-volume of MSM attendees, internet venues, incentivized provider referrals of newly diagnosed HIV cases, other HIV studies, from mass transportation advertisement, and incentivized peer referral. Data were gathered from in-depth interviews with the participants. Data on amount of money spent on each recruitment technique will be compared. A cost benefit analysis will determine the success of the recruitment techniques used in the study, provide a per-participant cost for comparison, and a cost per recruitment for harder to reach participants. This analysis can be used to guide future studies, provide insight into cost of different recruitment

modalities, cost per recruitment for different demographic groups and provide insight into possible recruitment disparities between different groups.

METHODS

Recruitment for Engage[MEN]t took place in Atlanta, Georgia. A wide variety of recruitment methods were used including physical and internet venues, and electronic and print platforms. Participants were also recruited from other HIV studies for which they were ineligible. For the purpose of analysis, recruitment techniques were grouped into three categories: electronic, in-person and print. Electronic recruitment consisted of electronic advertisement on social media, on social network sites, in online magazines and on bar advertisement screens, as well as group organization list serves and referrals. This type of recruitment relies on participants to click links online that directs them to a brief introduction script, online consent to be screened for the study, and a self-administered online screening survey. Electronic recruitment on social media and social network sites made use of targeted advertisements to all adult men in Atlanta whose profiles denote an interest in men or who "like" pages, events, etc. that are gay-oriented. Referrals recruited HIV positive MSM from other study banks of men who consented to be contacted for future studies for which they might be eligible.

In-person recruitment required staff presence at predetermined locations that MSM are known to frequent such as gay community events and bars. Study staff systematically approached men, obtained verbal consent, and administered a brief recruitment script and questions using a handheld device. Participants were not asked about their HIV status during the in-person screening but, if eligible, they were notified that there would be a more detailed follow up screening survey. High- volume events of MSM attendees, such as Pride events and the AIDS walk, followed the same procedure but provided incentivized screenings, which is taken into account for cost calculations.

Print recruitment consisted of advertisements placed on mass transportation around Atlanta, including MARTA (Metropolitan Atlanta Rapid Transit Authority) trains, buses and shelters/stations. Ads were also placed in David's Magazine, an Atlanta-based weekly periodical for the gay community, as well as Creative Loafing, an Atlanta-based publisher of a weekly newspapers in the United States. Print ads were also placed at a local Starbucks. Advertisements referred men to a study phone number to call for initial screening or to a website to complete an initial screening online.

Data collection and analysis

Demographics-

Participant demographics were gathered from study surveys including information regarding how the participant was recruited. Demographic variables used for analysis included self-reported race (black/African American or white/Caucasian), age at baseline, highest level of education (four categories ranging from less than high school to more than college), income in the last year (categorized into three groups: less than $20,000, more than $20,000 and did not know), and HIV diagnosis (new vs previously diagnosed).

Cost-

Cost data were available for advertisements placed in MARTA, magazines, on digital monitors at bars and social media. Several assumptions were made for these lump-sum costs. First, recruitment in David's Magazine had a lumped single cost for both electronic and print. This cost was evenly split for each type. Second, digital ads at bars included four separate locations for one cost. This cost was evenly divided among the four locations. Third, the cost for Facebook advertising also included Instagram. The total cost

was divided by the number of enrollees to get a cost per enrollee. In-person recruitment required person hours from students and staff. For this, cost was calculated using hours spent at recruiting event, number of staff and student members at the event, and the average per hour salary of recruiting personnel. For some in-person events, a screener cost was added to the person hour calculations to get the total cost. The screener cost reflects the amount of money spent on incentivizing participants at the event to take the screener survey. Not all participants who received an incentive were eligible to be a part of the study, but the cost was still incurred in the process of recruiting eligible participants. Referrals from other studies and peer referrals were not examined for cost. The study also made use of partnerships with community based organizations, list serves, and free advertisement to recruit participants at no cost. Total cost for each recruitment method was then divided by total number of participants recruited from that method to calculate the cost per enrollee per method. Data were analyzed by race and by age groups to look at disparities in recruitment. For this, total cost was divided by the total number of participants per variable to arrive at cost per enrollee. Data from the most successful venues was then analyzed to look the cost and demographics of participants enrolled from those venues. Venues with more than 20 participants recruited were chosen for this analyses. The venues included three electronic venues (BBRT, Facebook, and Grindr), one in-person (Atlanta Pride Festival) and two print (David Magazine and MARTA Ads).

RESULTS

A total of 400 MSM from Atlanta, Georgia were enrolled in the study. When looking at the demographics, 207 (51.75%) of the participants were black/African American and half of the participants (50.25%) were older than 30 years with a mean age at baseline of 40.47 years (Table 1).. Most participants reported having completed at least some college (82.75%) while only 38.0% reported having an income lower than $20,000. Nearly all were previously diagnosed with HIV (96.5%). The majority of enrolled participants were recruited through electronic recruitment (61.75%), while only 15.25% were recruited from in-person recruiting and 23.00% through print. A total of $22,597 were spent trying to recruit all 400 enrolled participants, resulting in an average cost per enrolled participant of $56.49.

Stratifying by Recruitment Technique

When looking at the recruitment categories, electronic recruitment enrolled more total participants than any other recruitment method (247 total participants, 61.75%) (Table 2). Race and age were significantly associated with recruitment type (p value <0.05). Although electronic recruitment was the most successful overall at recruiting both races, in-person recruitment was the next more successful at recruiting black/African American participants (23.19%) compared to white/Caucasian (6.74%). Print recruitment resulted in about 25% of recruitment regardless of race. In-person recruiting also recruited a younger demographic with a mean age of 36.75 compared to print and electronic (42.90 years and 48.48 years, respectively, p-value= 0.02). When examining recruitment options other than electronic, the younger the participants the more they preferred in-person recruitment. In contrast, the older the participant then more they were recruited by print

(36.75 years for in-person and 42.90 years for print, p-value= 0.02). Although electronic recruitment was the most successful at recruiting participants with recent HIV diagnosis, in-person recruitment was the next best (21.43%) Electronic was more likely to enroll participants with an income higher than $20,000 (66.24%). The total cost of recruitment was the highest for electronic at $12,423 for 247 participants with an average of $50.30 per participant recruited (Graph 2a.) On average, print recruitment was the most cost-effective ($39.67 per enrollee) and in-person being the most expensive ($106.95 per enrollee) (Graph 2b.).

Stratifying by Race

Age, level of education, income and way in which the participant was recruited are significantly associated with the race of the participant. (p-value <0.05). The majority of white/Caucasians were recruited through electronic platform (72.02%) while only 6.74% were recruited in-person. Black/African American were over three times as likely to get recruited in-person as white/Caucasians (23.19% compares to 6.74%, p-value <0.0001). Total cost of recruiting 207 black/African American participants was $12,589 while the total cost of recruiting 193 white/Caucasians participants was $10,008 (Graph 3a.). Cost per enrolled participant was higher for black/African American than for white/Caucasians by $8.97 (Graph 3b.) When looking at characteristics of the cohort by race, black/African American enrollees were on average younger than white/Caucasian enrollees (37.10 years compared to 44.08 years, p-value <0.0001) (Table 3). White/Caucasian enrollees were more likely to have completed college and have a higher income (p value =0.005 and <0.0001, respectively). We were able to recruit over twice as many black/African

American with new diagnosis when compared to white/Caucasian (2.07% and 4.83%, respectively).

Stratifying by Age

Race, level of education, income, HIV Diagnosis and way in which the participant was recruited are significantly associated with the age of the participant (p-value <0.05). Across all the age categories, electronic recruitment was the most common (around 60% for all age groups). In those 40-49 years and older than 50 years, in-person recruitment was the least successful (14.29% and 6.80%, respectively) In contrast, in those 18-29 years and 30-39 years, print was the least successful recruitment method (19.48% and 18.03%, respectively; p-value 0.021). Those 30-39 years of age were the highest cost ($7,206.85 for 122 participants) (Graph 4a.), while those 18-29 years were the lowest total cost ($4,677 for 77 participants) Those 50 years or older were the most cost effective in terms of cost per enrollee ($50.64) (Graph 4b.). The younger age group was the least cost effective per enrolled participant ($60.74). Results separated by age group, showed that the younger age groups, 39 years or younger were more likely to be black/African American while the older age groups, 40 or older were more likely to be white/Caucasians (p value <0.0001). (Table 4). Older enrollees were more likely to have higher education and have higher income (p value 0.0002 and 0.0009, respectively). The 18-29 age group had a higher percentage of new HIV diagnosis (11.69%) compared to less than 3% for the other age categories (p value 0.0008).

Stratifying by Recruitment Technique, Age and Race for Most Successful Venues

When restricting the analysis to the most successful venues (those that recruited more than 20 participants), we ended up with a total of six venues that enrolled 288 participants (72% of all 400 participants) (Table 5). BBRT (BareBack Real Time, an online sex hookup site) and Facebook (both electronic) were most successful at recruiting older white/Caucasian participants (57.69% and 51.22%, respectively). Grindr was the most successful at recruiting the highest number of participants (109 participants out of the 288). Atlanta Pride Festival (in-person) recruited more black/African participants than white/Caucasians (14 out of 22 participants, 63.64%). David Magazine (print) was the most successful at recruiting white/Caucasian MSM older than 50 years (53.13%) compared to any other venue but only led to one black/African American participant. In contrast, MARTA ads (print) were very successful at recruiting black/African Americans (84.48%). When looking at how much money was spent at each of these venues, BBRT had no cost, while Facebook had the highest total cost ($4,806) (Table 6). Because BBRT had no cost, it was the most cost effective per enrolled participant, followed by Grindr ($22.94) and MARTA ads ($28.44). The least cost effective venues were Facebook ($117.22) and Atlanta Pride Festival ($99.82). When examining the most effective venues for recruitment, white/Caucasian MSM older than 50 years were the most expensive to recruit ($3,015 for 59 participants) and black/African Americans were the least expensive to recruit (average cost per enrolled participant less than $45.67) (Graph 6).

DISCUSSION

The aim of this study was to provide data on cost to recruit each HIV+ MSM in a study in Atlanta by recruitment technique, race and age group. Additional aims were to determine the success of the recruitment techniques used in the study, provide a per-participant cost for comparison, and a cost per recruitment for harder to reach participants. Electronic recruitment was the most common form of recruitment in this study with 61.75% recruited through this modality. On average for this study, it cost $51.85 to recruit a white/Caucasian participant and $60.82 to recruit a black/African American participant. The cost per type of recruitment modality was $50.30 for electronic, $106.95 for in-person and $39.67 for print. In-person recruitment was the most expensive per enrolled participant but was effective at recruiting black/African American participants; of all those recruited by in-person, 78.69% were black/African American. Electronic recruitment was best at recruiting participants with an income higher than $20,000 (62.75%) as well as white/Caucasian men (56.28%). Print recruitment successfully recruited those older than 40 years old (59.52%) and was the least expensive cost per enrolled participant ($39.67).

Looking at results by recruitment technique is helpful at breaking down the demographics of the participants that you are likely to recruit by each method. It also allows you to look at different demographics you are interested in representing in your sample and determining which recruitment technique is best to enroll those participants. This also gives you an estimate of the total cost needed to budget for each recruitment type and decide which method is the most cost efficient.

When looking at the cost among the most successful venues, we took into account the age and race of each participant and their associated method of recruitment to more specifically calculate cost. On average, black/African Americans were more expensive to recruit in this analysis but this more specific venue-based analysis showed the opposite. Similarly, results varied for age. Although, both methods found that the younger age groups were the most expensive to enroll, there were contradicting results about which age group was the most cost effective. It is important to note that both methods are useful to the analyses. Including all data presented by the study population provides average costs that could be used to extrapolate cost needed to recruit certain participants. Through this analysis, we found that several venues had increased costs per enrolled participants because they only successfully recruited 1-2 participants and were greatly affecting the cost estimates. Such low numbers of recruitment at these venues could not accurately represent the potential for recruitment thus mandating the need for the analysis including only the most successful venues to calculate cost that were less variable.

These results mirror those reported by prior studies. In particular, Parsons et all, found that field-based recruitment reached a greater proportion of adult MSM (aged 30-39) and MSM of color (16). Du Bois et al. found decreased participation in online HIV and other health research among racial and ethnic minority MSM (17). Similar to our results, Mckee et al found that in-person recruitment at gay venues was successful at recruiting a younger demographic (13). Contradictory to our results, Hatfield et al. found that print advertisement was successful at recruiting non-Hispanic white MSM (14). The

EXPLORE study found that younger men and men of color were more likely to be recruited at clubs or bars (15), corroborating our results when looking at recruitment by age and race.

Limitations

A limitation of this research is the post-hoc nature of the analysis. Since the primary purpose of Engage[MEN]t study was not a cost benefit analysis, data collection with the intention of examining recruitment methods and cost per enrolled participants was not a primary aim. Missing data include the characteristics and numbers of men screened but not enrolled, either for ineligibility or lack of interest; clear logs of person-hours worked at events, or cost associated with screener incentives. Not having the total number of participants reached does not allow us to see how effective each recruitment technique was at successfully enrolling eligible participants in proportion to those reached. In terms of cost, we cannot determine how much money is being spent per participant that is not eligible. Not having clear logs of person hours led to an algorithm for estimating cost that may have underestimated cost data for in-person recruiting. There are also some limitations to this study regarding a small sample size, restriction to location in just Atlanta, Georgia and just including two races. It is also important to note that these results are not generalizable to studies recruiting HIV negative participants because Engage[MEN]t recruitment methods only enrolled participants with HIV.

Strengths and Future Directions

These results address a gap in research on recruitment methods. We have seen that through a variety of methods it is possible to recruit and retain a large, diverse sample of men from a stigmatized sexual minority. From a recruiting planning perspective, knowing the effectiveness of each recruitment technique may improve the ability of successfully enroll participants in a study. Furthermore, knowing the demographics of the participants likely to be targeted by each recruitment technique is helpful to plan and estimate enrolment into the study. From a budgeting perspective, knowing the most cost-effective way to recruit participants can allow funds to be allocated to targeting specific demographics of harder to reach participants. Also, a cost-benefit analysis like this is essential in providing estimates for budgeting and grant writing. Future work should investigate the cost-effectiveness of these techniques more in depth.

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TABLES AND GRAPHS

Table 1. Characteristics of 400 Black and White MSM Living with HIV, Engage[MEN]t Study, Atlanta, GA

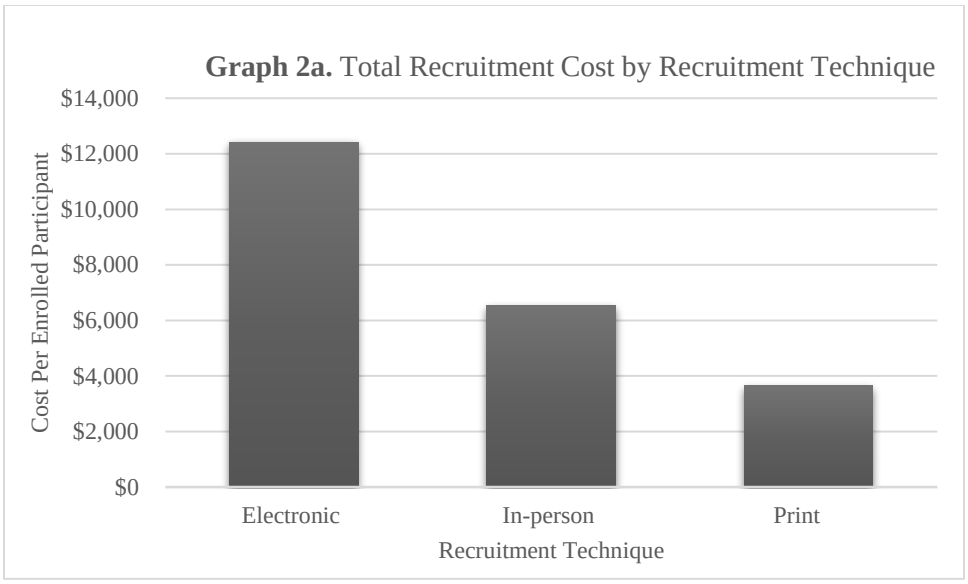
	N=400
Self-reported Race	
Black/African American	207 (51.75%)
White/Caucasian	193 (48.25%)
Age at baseline (years)	
18-29	77 (19.25%)
30-39	122 (30.50%)
40-49	98 (24.50%)
50+	103 (25.75%)
Mean age at baseline	40.47
Highest Level of Education	
College, post graduate, professional school	162 (40.50%)
Some college	169 (42.25%)
High school or GED	59 (14.75%)
Did not finish high school	10 (2.50%)
Income in the last year (dollars)	
$0 - $19,999	152 (38.00%)
$20,000 or more	234 (58.50%)
Don't know/ Missing	14 (3.50%)
HIV Diagnosis	
New Diagnosis (with 90 days)	14 (3.5%)
Previous Diagnosis (more than 90 days)	386 (96.5%)
Recruitment Technique	
Electronic	247 (61.75%)
In-person	61 (15.25%)
Print	92 (23.00%)
Recruitment Cost (dollars)	
Total	$22,597
Per Enrolled Participant	$56.49

*p-value <0.05

Table 2. Characteristics of 400 Black and White MSM Living with HIV by Type of Recruitment Technique, Engage[MEN]t Study, Atlanta, GA

	Electronic N=247 (61.75%)	**In-person N=61 (15.25%)**	**Print N=92 (23.00%)**	**P-value**
Self-reported Race				<0.0001*
Black/African American	108 (52.17%)	48 (23.19%)	51 (24.64%)	
White/Caucasian	139 (72.02%)	13 (6.74%)	41 (21.24%)	
Age at baseline (years)				0.02*
18-29	45 (58.44%)	17 (22.08%)	15 (19.48%)	
30-39	77 (63.11%)	23 (18.85%)	22 (18.03%)	
40-49	63 (64.29%)	14 (14.29%)	21 (21.43%)	
50+	62 (60.19%)	7 (11.48%)	34 (33.01%)	
Mean age at baseline	48.48	36.75	42.90	
Highest Level of Education				0.65
College, post graduate, professional school	96 (59.26%)	29 (17.90%)	37 (22.84%)	
Some college	111 (65.68%)	23 (13.61%)	35 (20.71%)	
High school or GED	33 (55.93%)	8 (13.56%)	18 (30.51%)	
Did not finish high school	7 (70.00%)	1 (10.00%)	2 (20.00%)	
Income in the last year (dollars)				0.23
$0 - $19,999	84 (55.26%)	26 (17.11%)	42 (27.63%)	
$20,000 or more	155 (66.24%)	32 (13.68%)	47 (20.09%)	
Don't know/ Missing	8 (57.14%)	3 (21.43%)	3 (21.43%)	
HIV Diagnosis				0.62
New Diagnosis (with 90 days)	9 (64.29%)	3 (21.43%)	2 (14.29%)	
Previous Diagnosis (more than 90 days)	238 (61.66%)	58 (15.03%)	90 (23.32%)	
Recruitment Cost (dollars)				
Total	$12,423	$6,524	$3,650	
Per Enrolled Participant	$50.30	$106.95	$39.67	

*p-value <0.05


Graph 2a. Total Recruitment Cost by Recruitment Technique
$14,000
$12,000
$10,000
$8,000
$6,000
$4,000
$2,000
$0
Cost Per Enrolled Participant
Electronic
In-person
Print
Recruitment Technique

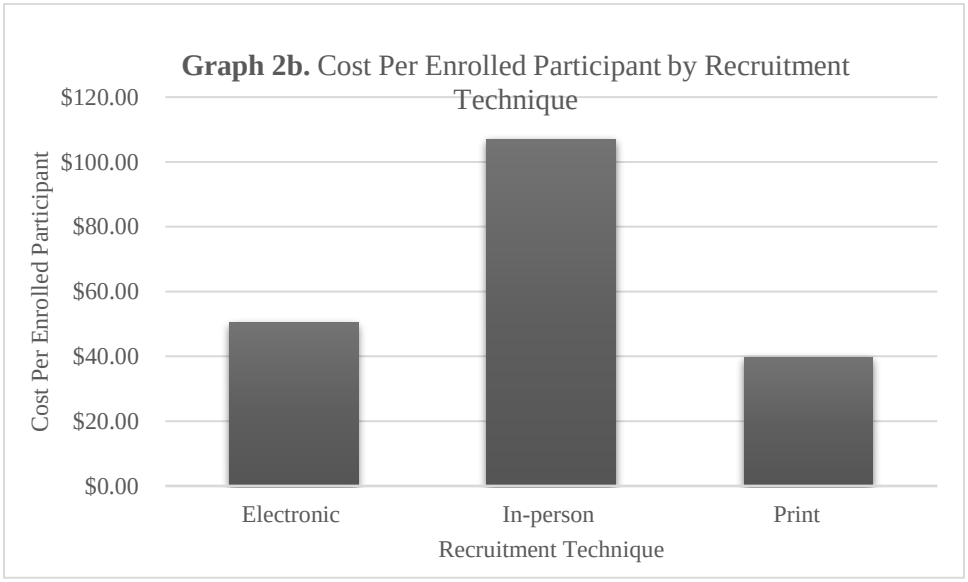
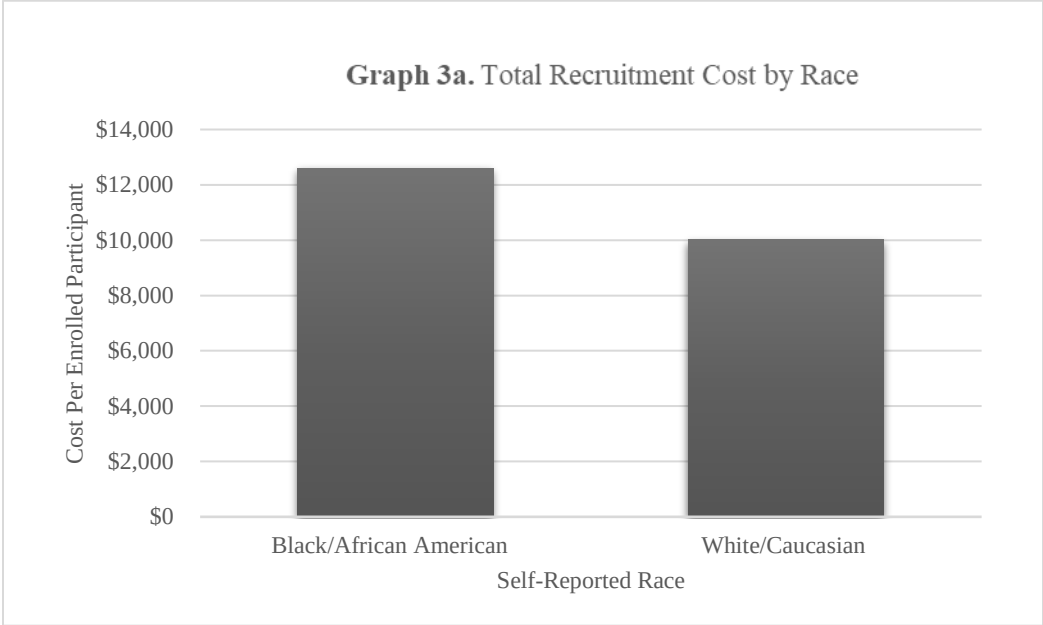

Graph 2b. Cost Per Enrolled Participant by Recruitment Technique
$120.00
$100.00
$80.00
$60.00
$40.00
$20.00
$0.00
Cost Per Enrolled Participant
Electronic
In-person
Print
Recruitment Technique

Table 3. Characteristics of 400 Black and White MSM Living with HIV by Race Engage[MEN]t Study, Atlanta, GA

	Black/African American N=207 (51.75%)	**White/Caucasian** N=193 (48.25%)	**P-value**
Age at baseline (years)			<0.0001*
18-29	54 (26.09%)	23 (11.92%)	
30-39	81 (39.13%)	41 (21.24%)	
40-49	41 (19.81%0	57 (29.53%)	
50+	31 (14.98%)	72 (37.31%)	
Mean age at baseline	37.10	44.08	
Highest Level of Education			0.005*
College, post graduate, professional school	67 (32.37%)	95 (49.22%)	
Some college	101 (48.79%)	68 (35.23 %)	
High school or GED	32 (15.46%)	27 (13.99%)	
Did not finish high school	7 (3.38%)	3 (1.55%)	
Income in the last year (dollars)			<0.0001*
$0 - $19,999	97 (46.86%)	55 (28.50%)	
$20,000 or more	100 (48.31%)	134 (69.43%)	
Don't know/ Missing	10 (4.83%)	4 (2.07%)	
HIV Diagnosis			0.134
New Diagnosis (with 90 days)	10 (4.83%)	4 (2.07%)	
Previous Diagnosis (more than 90 days)	197 (95.17%)	189 (97.93%)	
Recruitment Technique			<0.0001*
Electronic	108 (52.17%)	139 (72.02%)	
In-person	48 (23.19%)	13 (6.74%)	
Print	51 (24.64%)	41 (21.24%)	
Recruitment Cost (dollars)			
Total	$12,589	$10,008	
Per Enrolled Participant	$60.82	$51.85	

*p-value <0.05


Graph 3a. Total Recruitment Cost by Race
$14,000
$12,000
$10,000
$8,000
$6,000
$4,000
$2,000
$0
Cost Per Enrolled Participant
Black/African American
White/Caucasian
Self-Reported Race

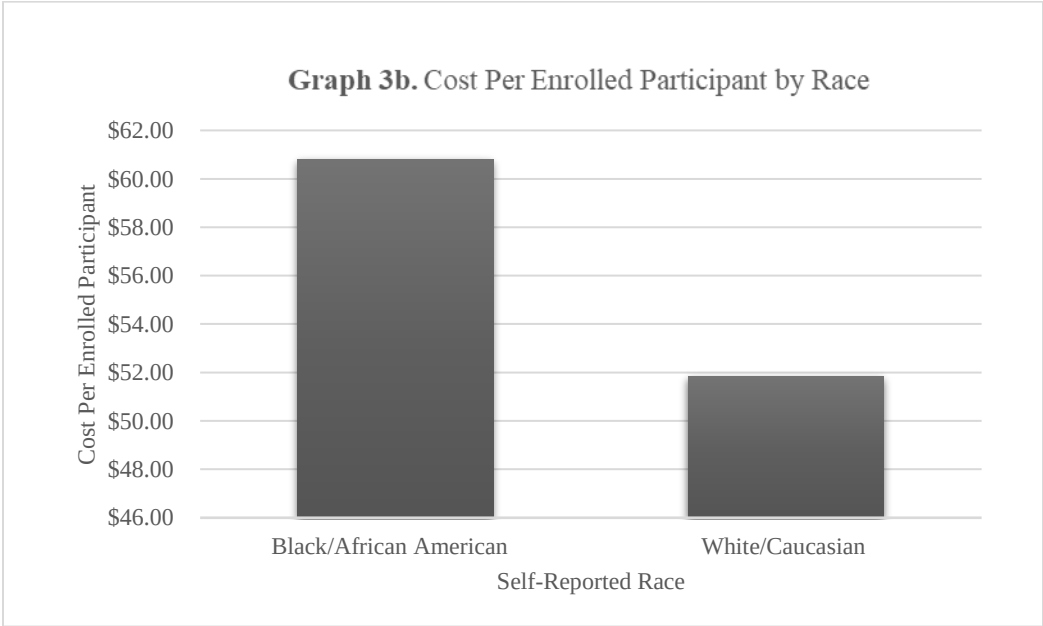
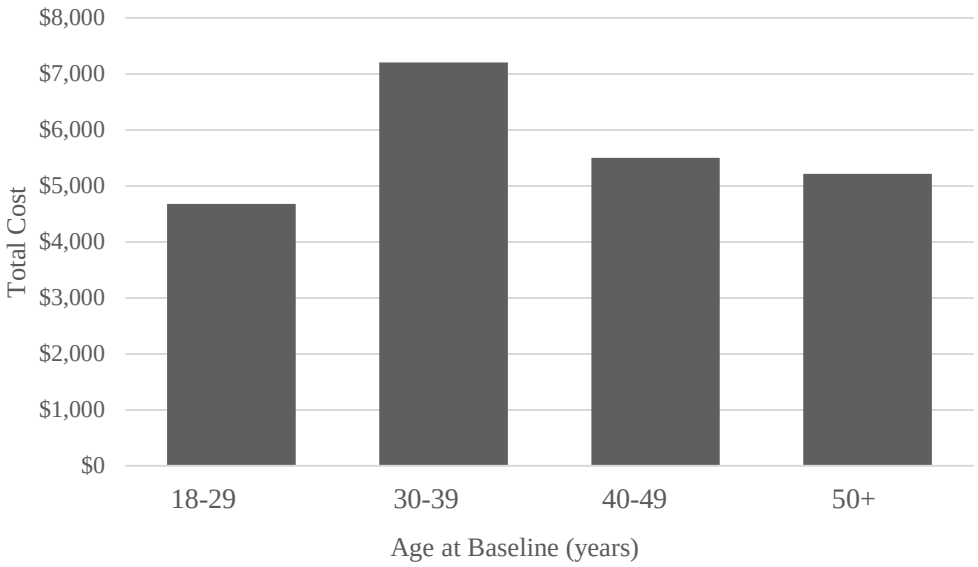

Graph 3b. Cost Per Enrolled Participant by Race
$62.00
$60.00
$58.00
$56.00
$54.00
$52.00
$50.00
$48.00
$46.00
Cost Per Enrolled Participant
Black/African American
White/Caucasian
Self-Reported Race

Table 4. Characteristics of 400 Black and White MSM Living with HIV by Age at Baseline Engage[MEN]t Study, Atlanta, GA

	Age Groups at Baseline (years)				
	18-29 N=77 (19.25%)	**30-39** N=122 (30.50%)	**40-49** N=98 (24.50%)	**50+** N=103 (25.75%)	**P-value**
Self-reported Race					<0.0001*
Black/African American	54 (70.13%)	81 (66.39%)	41 (41.84%)	31 (30.10%)	
White/Caucasian	23 (29.87%)	41 (33.61%)	57 (58.16%)	72 (69.90%)	
Highest Level of Education					0.0002*
College, post graduate, professional school	18 (23.38%)	44 (36.07%)	42 (42.86%)	58 (56.31%)	
Some college	35 (45.45%)	60 (49.18%)	37 (37.76%)	37 (35.92%)	
High school or GED	20 (25.97%)	14 (11.48%)	17 (17.35%)	8 (7.77%)	
Did not finish high school	4 (5.19%)	4 (3.28%)	2 (2.04%)	0 (0.00%)	
Income in the last year (dollars)					0.0009*
$0 - $19,999	42 (54.55%)	43 (35.25%)	39 (39.80%)	28 (27.18%)	
$20,000 or more	30 (38.96%)	73 (59.84%)	59 (60.20%)	72 (69.90%)	
Don't know/ Missing	5 (6.49%)	6 (4.92%)	0 (0.00%)	3 (2.91%)	
HIV Diagnosis					0.0008*
New Diagnosis (with 90 days)	9 (11.69%)	3 (2.46%)	1 (1.02%)	1 (0.97%)	
Previous Diagnosis (more than 90 days)	68 (88.31%)	119 (97.54%)	97 (98.98%)	102 (99.03%)	
Recruitment Technique					0.021*
Electronic	45 (58.44%)	77 (63.11%)	63 (64.29%)	62 (60.19%)	
In-person	17 (22.08%)	23 (18.85%)	14 (14.29%)	7 (6.80%)	
Print	15 (19.48%)	22 (18.03%)	21 (21.43%)	34 (33.01%)	
Recruitment Cost (dollars)					
Total	$4,677	$7,206	$5,499	$5,216	
Per Enrolled Participant	$60.74	$59.06	$56.12	$50.64	

*p-value <0.05

Graph 4a. Total Recruitment Cost by Age Groups



Graph 4b. Cost Per Enrolled Participant by Age Groups

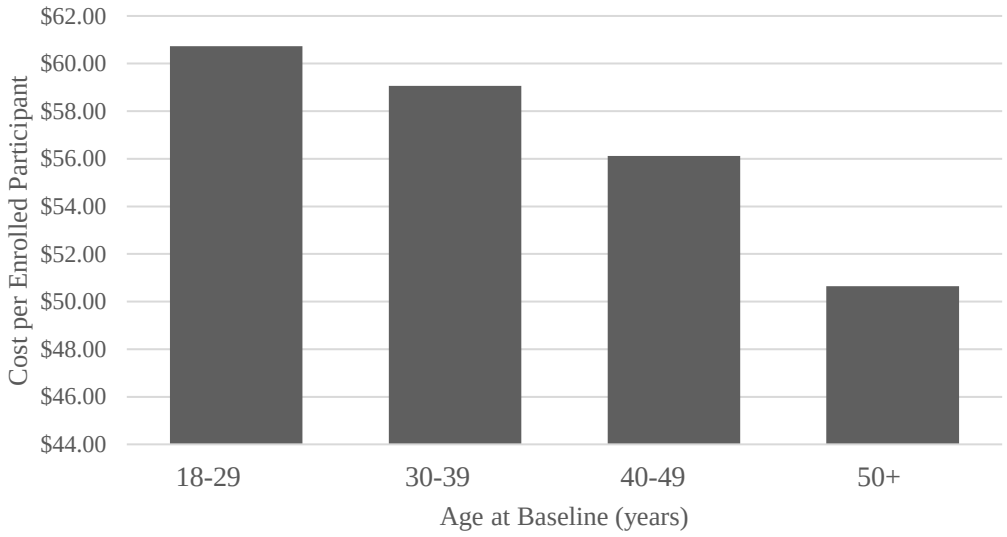
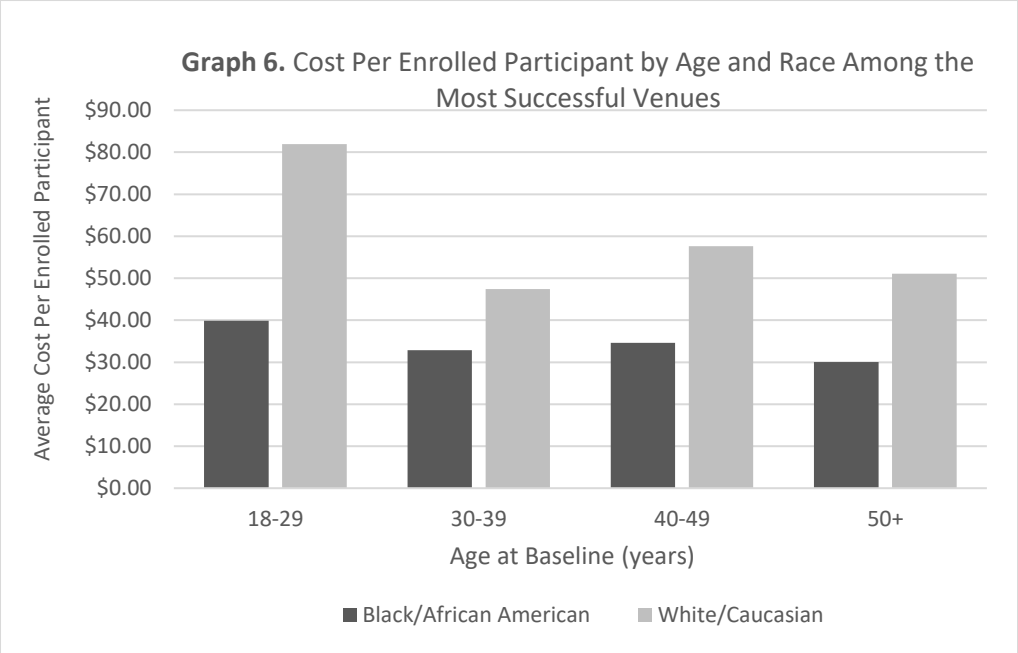


Table 5. Characteristics of the Most Successful Recruitment Techniques in a Cohort of Black and White MSM Living with HIV by Race, Age and Recruitment Technique, Engage[MEN]t Study, Atlanta, GA

				Self-Reported Race							
				Black/African American				White/Caucasian			
				Age Groups at Baseline (years)				Age Groups at Baseline (years)			
	Total Cost	Number of Enrollees	Cost Per Enrolled Participant	**18-29**	**30-39**	**40-49**	**50+**	**18-29**	**30-39**	**40-49**	**50+**
Recruitment Technique											
Electronic											
BBRT	$0	26	$0	1 (3.85%)	2 (7.69%)	1 (3.85%)	2 (7.69%)	1 (3.85%)	4 (15.38%)	5 (19.23%)	10 (38.46%)
Facebook	$4,806	41	$117.22	1 (2.44%)	2 (4.88%)	0 (0%)	0 (0%)	10 (24.39%)	7 (17.07%)	10 (24.39%)	11 (26.83%)
Grindr	$2,500	109	$22.94	11 (10.09%)	30 (27.52%)	13 (11.93%)	9 (8.26%)	3 (2.75%)	16 (14.68%)	13 (11.93%)	14 (12.84%)
In-person											
Atlanta Pride Festival	$2,196	22	$99.82	4 (18.18%)	4 (18.18%)	4 (18.18%)	2 (9.09%)	1 (4.55%)	1 (4.55%)	4 (18.18%)	2 (9.09%)
Print											
David Magazine	$2,000	32	$62.50	1 (3.13%)	0 (0%)	0 (0%)	0 (0%)	3 (9.38%)	4 (12.50%)	7 (21.88%)	17 (53.13%)
MARTA Ads	$1,650	58	$28.44	10 (17.24%)	17 (29.31%)	12 (20.69%)	10 (17.24%)	1 (1.72%)	1 (1.72%)	2 (3.45%)	5 (8.62%)
Total	$13,152	288	$45.67	28 (9.72%)	55 (19.10%)	30 (10.42%)	23 (7.99%)	19 (6.60%)	33 (11.46%)	41 (1424%)	59 (20.49%)

Table 6. Total Cost of the Most Successful Recruitment Techniques in a Cohort of Black and White MSM Living with HIV by Race, Age and Recruitment Technique, Engage[MEN]t Study, Atlanta, GA

				Self-Reported Race							
				Black/African American				White/Caucasian			
				Age Groups at Baseline (years)				Age Groups at Baseline (years)			
	Total Cost	Number of Enrollees	Cost Per Enrolled Participant	**18-29**	**30-39**	**40-49**	**50+**	**18-29**	**30-39**	**40-49**	**50+**
Recruitment Technique											
Electronic											
BBRT	$0	26	$0	$0	$0	$0	$0	$0	$0	$0	$0
Facebook	$4,806	41	$117.22	$117.22	$234.44	$0	$0	$1,172.20	$820.54	$1,172.20	$1,289.42
Grindr	$2,500	109	$22.94	$252.34	$688.20	$298.22	$206.46	$68.82	$367.04	$298.22	$321.16
In-person											
Atlanta Pride Festival	$2,196	22	$99.82	$399.28	$399.28	$399.28	$199.64	$99.82	$99.82	$399.28	$199.64
Print											
David Magazine	$2,000	32	$62.50	$62.50	$0	$0	$0	$187.50	$250.00	$437.50	$1,062.50
MARTA Ads	$1,650	58	$28.44	$284.40	$483.48	$341.28	$284.40	$28.44	$28.44	$56.88	$142.20
Total	$13,152	288	$45.67	$1,116	$1,805	$1,039	$691	$1,557	$1,566	$2,364	$3,015
	Average Cost Per Enrolled Participant			$39.85	$32.83	$34.63	$30.02	$81.94	$47.45	$57.66	$51.10


Graph 6. Cost Per Enrolled Participant by Age and Race Among the Most Successful Venues
Average Cost Per Enrolled Participant
$90.00
$80.00
$70.00
$60.00
$50.00
$40.00
$30.00
$20.00
$10.00
$0.00
18-29
30-39
40-49
50+
Age at Baseline (years)
Black/African American
White/Caucasian