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## Gender Differences in Substance Use Treatment and Substance Use among Adults on Probation

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### Abstract

**Background:** Although many formal and informal substance use treatment programs were originally designed for men, no studies have investigated how gender affects use of substance use treatment modalities, and how gender differences in treatment utilization impact substance use in the unique probation context.

**Objective:** To describe gender differences in use and effectiveness of substance use treatment modalities (formal and informal) among probationers.

**Methods:** Longitudinal data were obtained from 335 individuals (93 women) who participated in the Motivational Assessment Program to Initiate Treatment (MAPIT) study. Timeline follow-back measures were used to quantify daily substance use and treatment modality (formal treatment included inpatient and outpatient treatment; informal treatment included self-help, religious and all other group meetings). Multivariate generalized estimating equations were used to examine relationships between gender, treatment and substance use.

**Results:** Gender was not associated with alcohol use. Use of formal treatment programs reduced the odds of alcohol use by 15%. The probability of alcohol use was lowest (8%) for men who participated in formal treatment. For men using informal treatment programs, the probability of alcohol use was 11%. The probability of alcohol use for women was similar regardless of type of treatment utilization (15–16%). No differences in illicit drug use by gender or type of treatment were detected.

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**Conclusion:** This research found limited evidence of a relationship between gender, substance use treatment modality, and alcohol use. These findings have clinical significance in that both formal and informal treatment approaches are similarly effective across both men and women.

### Keywords

substance use treatment; treatment modality; drug use; probation; gender

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### Introduction

About 3.8 million adults or more than one-half (55%) of adults in the criminal justice system are under community-based supervision in the U.S.<sup>1-3</sup> Substance abuse is pervasive within this population.<sup>4</sup> For example, adult males on probation have 2.5 times the rate of alcohol use disorders, and four times the rate of drug use disorders compared to the general population.<sup>5</sup> Despite the high rates of substance use disorders, as many as 90% of probationers do not receive treatment for substance use problems.<sup>6,7</sup>

The varying treatment needs of men and women involved with the justice system has spurred demand for gender responsive treatment programming.<sup>8-13</sup> Many existing forms of formal and informal substance use treatment (e.g., self-help, 12-step, intensive and general outpatient, inpatient, faith-based) were designed primarily for men.<sup>10</sup> However, women often have different pathways to substance use that demand unique treatment approaches.<sup>10,12-14</sup> In addition, women misuse licit drugs at greater rates than men,<sup>9</sup> and disproportionately exhibit psychiatric co-morbidities that require concurrent treatment.<sup>15,16</sup> Finally, women report greater rates of victimization<sup>15-18</sup> and stressors associated with parenting,<sup>16</sup> which require unique approaches to treatment.

Gender differences in substance use and substance use treatment utilization are well established in the general population,<sup>19-23</sup> however there is a limited understanding of these differences among criminal justice populations. Gender responsive approaches may help promote better outcomes, particularly among women.<sup>11,16,24,25</sup> Given this growing interest in gender responsive approaches, there is a greater need to understand how gender differences may impact outcomes in different segments of the criminal justice system. Much of the available research focuses on incarcerated samples,<sup>8,10,26</sup> juveniles,<sup>8</sup> or fails to compare men and women.<sup>11</sup> Importantly, studies of incarcerated samples do not account for the large number of individuals under correctional control in the community. Treatment utilization in prison settings is different than in the community—in prison, the facility has more control over who can participate in treatment and the types of services offered. Individuals can volunteer for participation but ultimately the prison limits the whether a person is eligible for programming. People under community supervision can participate in any form of treatment unless they are mandated to a particular treatment program (only a few probation agencies mandate to certain programs). Thus, treatment participation varies considerably based on the individual and is often affected by life circumstances such as transportation, program location and time, and other factors that prisoners do not need to address. Very little is known about how treatment utilization patterns may be affected by these additional complications.

Two studies have documented the differential effectiveness of treatment forms, such as psychotherapy, self-help groups and group counseling, on substance use and recidivism for men and women.<sup>27,28</sup> Pelissier and colleagues (2003) found that use of self-help groups during probation reduced drug use among women, but not men. No other gender differences in treatment outcomes were observed. Despite gender responsiveness towards men rather than women in the development of many formal and informal substance use treatment programs (including self-help groups), no studies have investigated how gender affects the use of different types of substance treatment, and how these gender differences in treatment utilization impact substance use. To our knowledge, no research to date has used intensive longitudinal data to assess daily variations in the types of treatment used by men and women in community corrections, and how the use of different treatment modalities influences subsequent alcohol and drug use. To address this gap, the purpose of this study was to: 1) describe gender differences in substance use treatment modalities among probationers; and 2) assess gender differences in the effectiveness of different types of treatment in reducing alcohol and drug use.

We used timeline follow-back data from probationers participating in a randomized trial to examine the effects of gender on treatment utilization (formal and informal) and to determine whether treatment utilization moderated the relationship between gender and substance use over six-months. We expected that gender would affect the type of treatment used, as women in our sample identified more “treatment-related goals” and elected to receive more treatment-oriented reminders compared to men.<sup>29</sup> We hypothesized that these behaviors would differentially affect treatment participation rates and ultimately rates of substance use over 6 months. These results will help inform probation policy and practices regarding the role of different treatment modalities in improving substance use outcomes for probationers.

## Methods

### Study Design

Longitudinal data were obtained as a part of the Motivational Assessment Program to Initiate Treatment (MAPIT) study.<sup>30</sup> MAPIT gathered data from 360 clients who were being supervised by probation agencies in Baltimore City, MD (general population of 620,000) and Dallas County, TX (general population of 2.5 million). To recruit participants, research staff used a variety of convenience and snowball sampling methods, including word of mouth, flyers and brochures, and client referrals from probation officers. Clients were eligible if they were newly placed on probation, adult, English-speaking, and reported at least one day of drug use or heavy alcohol use ( $\geq 5$  drinks for men;  $\geq 4$  drinks for women) in the past 90 days. Following the baseline assessment, participants were randomized to one of three conditions: motivational computer (MAPIT), in-person motivational interviewing (MI), or supervision as usual (SAU). Follow-up interviews were conducted at 2- and 6-months. For more information about study design and procedures, see Taxman et al. (2015). Secondary analyses of existing data were exempt from human subjects review.

The final sample included 160 probationers in Baltimore and 200 probationers in Dallas (N=360). Thirty-five clients were excluded from these analyses due to missing follow-up

data (n=32) and gender identified as “other” (n=3). The analytic sample for this study was 335.

## Measures

**Outcome: Substance Use.**—Alcohol and drug use were collected over a 6-month follow-up period using the Timeline Follow-back (TLFB) self-report measure. The TLFB is a calendar-based recall system that has been widely used to gather substance use behavior data.<sup>31</sup> For alcohol use, participants were categorized as having used or not used any alcohol (reference category) on each day. If any illicit drug use was reported, the participant was classified as having “used illicit drugs” on that particular day.

**Exposure: Treatment Utilization.**—The type of daily treatment utilization was gathered on the TLFB. On each day, treatment utilization was dichotomously coded as: 1) “sought formal treatment” or “did not seek formal treatment”, and 2) “sought informal treatment” or “did not seek informal treatment”. Formal treatment included inpatient, intensive outpatient, general outpatient, or other medically assisted treatment; informal treatment modalities included self-help programs (Alcoholics Anonymous, Narcotics Anonymous, or Cocaine Anonymous), religious services, or other types of group meetings.

TLFB measures for substance use and treatment utilization were stored in ‘wide’ format in separate databases. Both TLFB databases were merged together and transformed into ‘long’ format for longitudinal analysis. Rows represented a participant’s treatment utilization and substance use for one day, and columns contained types of substances (e.g., alcohol, heroin, cocaine, and marijuana) and forms of treatment (e.g., AA, NA, detoxification, group therapy).

**Covariates**—included intervention condition (MAPIT, MI or SAU), site (Dallas or Baltimore), race (White, Black, other race; dummy coded so that respondents could select more than one race), ethnicity (Hispanic or Not Hispanic), age, and whether or not the participant was court-mandated to attend treatment.

## Statistical Analysis

Analyses were conducted using Stata 14 (College Station, TX). To examine differences in the substance use treatment modalities, alcohol, and drugs used among probationers by gender (Aim 1), we used bivariate cross-tabulations and multivariate generalized estimating equations (GEE) for intensive longitudinal, correlated data.<sup>32</sup> The flexible GEE framework estimates within- and between-person trajectories for the exposure and outcome variables over time. GEEs are particularly robust for longitudinal analyses of behavior with multiple repeated measures, such as TLFB assessments, daily diaries, and ecological momentary assessments.<sup>33</sup> These models allow treatment utilization and drug use to vary on a day-by-day basis and permit a robust examination of the impact that treatment utilization has on alcohol and drug use over time. Lagged variables (similar to those used in time-series analyses) were generated using the *Ivar* command such that reductions in substance use would temporally follow treatment utilization.

All variables were examined for linearity and outliers using histograms, line plots, and frequency distributions prior to multivariate analyses. Second, logistic regression models were fit within the GEE framework to assess gender differences in the relationship between formal and informal treatment utilization and alcohol and drug use. Multivariate GEE models were built to test the direct effects of treatment utilization and gender using factors related to gender identified in Aim 1. To identify whether gender impacted the relationship between treatment utilization and alcohol or drug use, a multiplicative interaction term (gender\* formal treatment utilization; gender\*informal treatment utilization) was introduced into multivariate models. Item-level missing data were handled using maximum likelihood estimation.

## Results

A description of the sample is provided in Table 1. Of the 335 probationers included in this study, more than two-thirds were male. The average age of participants was 35.3 years ( $sd=11.71$ ), and most participants identified as Black (69%). More than half of probationers were recruited from the Dallas site (55.9%) and randomization across experimental conditions was approximately equal (one-third of the sample were randomized to each condition). More than one-third of the sample was mandated to substance use treatment as a condition of probation. Participants who were mandated to use treatment services were significantly more likely to be White and older in age than those not mandated to treatment. Participants who were mandated to treatment were also less likely to use marijuana (there were no other significant differences in substance use patterns). No gender differences in mandated treatment were detected. Those who were mandated to treatment were significantly more likely to use informal and formal treatment services at least once compared to those who were not mandated.

Substance use and treatment patterns are detailed in Table 1, including bivariate tests examining gender differences. Alcohol was the most commonly used substance (69%); illicit drugs were used by 53% of the sample. More than half of the sample used formal (55%) or informal treatment (60.7%) modalities. Women were significantly more likely to use formal treatment modalities compared to men (66% for women; 49% for men). Post-hoc analyses suggested that both men and women used most forms of treatment similarly. A notable exception was medical treatment, which was used significantly more often by females than males ( $p=.002$ ; results not shown). Because cell sizes for specific forms of treatment were small and gender differences were uncommon, the remainder of the results focus on formal versus informal treatment utilization.

Table 2 depicts the relationship between each independent variable and substance use. First, univariate models were fit to assess unadjusted relationships between gender, formal or informal treatment utilization, and alcohol and illicit drug use. Results from this initial stage of building suggested that females were 10% less likely to use alcohol (OR=.90; 95% CI .55–1.47), formal treatment reduced the odds of alcohol use by 20% (OR=.80; 95% CI .74-.87), and informal treatment reduced the odds of alcohol use by 45% (OR=.55; 95% CI .50-.62). Gender was not associated with illicit drug use in the unadjusted models; therefore, additional models were not fit for illicit drug use.

The second stage of model building included adjustment for covariates, including mandated treatment requirements, experimental conditions, study site, race, ethnicity, and age (Table 3). After adjustment for these covariates, gender was not associated with alcohol use. However, use of formal treatment reduced the odds of alcohol use by 15%. Controlling for formal treatment, informal treatment use was not significantly associated with alcohol use. Finally, multiplicative interaction models were built to test the hypothesis that the relationship between formal and informal treatment utilization and alcohol use varied between men and women (Table 4). A significant interaction was found for formal treatment, indicating that women who used formal treatment were significantly more likely to use alcohol than men who did not use formal treatment (OR=1.46; 95% CI 1.27–1.68). Therefore, marginal means (i.e., a type of post hoc test) were generated to deconstruct the interaction effect. Results from post-hoc analyses suggested that the probability of alcohol use was lowest (8%) for men who used formal treatment. For men who did not use formal treatment, the probability of alcohol use was 10.7%. The probability of alcohol use for women was similar regardless of formal treatment use (15.3% when formal treatment was not used versus 16.1% when formal treatment was used).

## Discussion

This study found a strong relationship between formal and informal substance use treatment and alcohol use, although few gender differences in substance use and substance use treatment emerged among probationers in these two jurisdictions. Women were significantly more likely to use formal treatment modalities compared to men, but these gender differences did not persist after adjustment for covariates. Treatment effects were generally stable across gender, except for the formal treatment's effect on alcohol use. Specifically, women were more likely than men to use alcohol regardless of treatment. After controlling for covariates, there were no gender differences in the impact of treatment utilization on drug use.

Treatment participation's limited impact on drug use in this study was unexpected, as prior literature has demonstrated that treatment participation reduces drug use.<sup>34</sup> It is possible that the type of treatment services available in the two target jurisdictions may account for the null impact on drug use. While we know little about the actual treatment programs in these jurisdictions, prior research has found that many treatment programs for justice-involved populations do not embrace evidence-based approaches<sup>35,36</sup> or are not geared towards more severe substance use disorders.<sup>37</sup> In addition, while most formal treatment is designed for men,<sup>10</sup> few treatment programs use the principles of gender-responsive care<sup>15,16</sup> which might generate a greater impact on drug use behaviors as compared to generic programs.

The impact of formal and informal treatment utilization on alcohol use is of interest; particularly, the higher probability of alcohol use among women who used formal treatment than men did not use formal treatment modalities. Given what is known about women's pathways to substance use, this research supports an increased focus on ensuring that programs are at least gender neutral or that gender responsive programs exist for men and women.<sup>10,12–14</sup> Providing gender-responsive programming can be a challenge given limited resources, as well as potentially low numbers of women to serve; however, as this research

demonstrates, this could be important to strengthen the impact of formal treatment options specifically for women.

Furthermore, reductions in alcohol use among both formal *and* informal treatment users suggests that communities may benefit from broadly expanding treatment options. Informal options include self-help programs (Alcoholics Anonymous, Narcotics Anonymous, or Cocaine Anonymous), religious services, or other community groups that are not provided by clinically-trained staff. Results from our study suggest that there might be a benefit to offer these services as extenders or enhancements to formal treatment.

Reducing alcohol use among probationers is important since it also serves to reduce other risky behaviors such as unprotected sex, drug use, and needle sharing.<sup>38-41</sup> Probation offices tend to be less concerned about alcohol use for offenders who were not convicted of an alcohol-related offense, but there are significant health and social benefits from reducing alcohol use among heavy drinkers, regardless of criminal charge or status.

### Strengths and Limitations

Despite the limited number of sites, this sample is highly unique, and no studies to date have included daily measures of treatment utilization uptake, treatment type, and substance use among probationers. The primary strength of this study is the use of TLFB procedures<sup>42</sup> to measure substance use and treatment utilization. These TLFB procedures are more reliable and valid than traditional survey methods,<sup>31,43</sup> and some research suggests that TLFB results are comparable to technology-based ecological momentary assessment (EMA) results.<sup>44-46</sup> Although this sample is highly unique and includes all measures necessary to address the proposed hypotheses, this sample only includes probationers from two U.S. cities (Baltimore, Maryland and Dallas, Texas). This limited sampling frame may reduce the external validity of the findings within probation settings given that these two sites were highly diverse demographically. Further, this study was not sufficiently powered to examine the effectiveness of different types of formal and informal treatment on alcohol and drug use, length of engagement in treatment, or intensity of treatment services used. Future studies should describe gender differences in specific types treatment, including duration and intensity.

It should be noted that this study used a particularly strong analytic methodology to examine gender differences in the impact of treatment utilization on substance use. Previous research on the relationship between treatment utilization and substance use have collapsed treatment use data to include “used methadone maintenance during study period” or “did not use methadone maintenance during study period”.<sup>28</sup> Although this aggregation approach permits correlational analyses, the temporality of the association is less robust because declines in drug use may not have occurred temporally proximal to the treatment utilization. This study is the first to assess the relationship between treatment utilization, substance use and gender using a robust, time-varying methodologic and analytic approach.

## Conclusions

In summary, this study found few gender differences in substance use and substance use treatment among probationers. As expected, women were more likely to use formal treatment modalities compared to men, but these gender differences did not persist after adjustment for covariates. Treatment effects were generally stable across gender, except for formal treatment's effect on alcohol use. Specifically, women had greater probabilities of alcohol use compared to men. This study helps to elucidate the limited effect of gender on treatment utilization and downstream substance use among probationers. Future studies should examine whether these findings are sensitive to treatment program completion, specific treatment modalities, engagement and intensity of treatment.

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**Table 1.**

Sample description at baseline, N=335.

|   | Overall N(%)              | Male (%)<br>N=93<br>72.2% | Female (%)<br>N=242<br>27.8% | <i>p</i> |
|---|---------------------------|---------------------------|------------------------------|----------|
| <i>Sample Description</i>                       |                           |                           |                              |          |
| Gender (Male)                                   | 242 (67.9%)               |                           |                              |          |
| Age (Mean, SD;<br>Median, Range)                | 35.32(11.71)<br>33(18–63) | 34.94(12.29)<br>32(18–63) | 36.11(10.44)<br>36(18–56)    | .379     |
| Race (may select<br>more than one) <sup>1</sup> |                           |                           |                              |          |
| White   | 89(25.0%)                 | 19.4%                     | 36.8%                        | <.001    |
| Black   | 245(68.8%)                | 73.6%                     | 58.8%                        | .005     |
| Other   | 43(12.1%)                 | 12.8%                     | 10.5%                        | .537     |
| Hispanic Ethnicity <sup>2</sup>                 | 69(19.4%)                 | 19.9%                     | 18.4%                        | .739     |
| <i>Site</i>                                     |                           |                           |                              |          |
| Dallas, Texas                                   | 199 (55.9%)               | 54.9%                     | 57.9%                        | .603     |
| Baltimore,<br>Maryland                          | 157 (44.1%)               | 45.1%                     | 42.1%                        |          |
| <i>Study Condition</i>                          |                           |                           |                              |          |
| Motivational<br>Interviewing (MI)               | 118 (33.2%)               | 36.0%                     | 27.2%                        | .254     |
| Standard Probation<br>(SAU)                     | 118 (33.2%)               | 31.4%                     | 36.8%                        |          |
| MAPIT   | 120 (33.7%)               | 32.6%                     | 35.9%                        |          |
| Court Mandated<br>treatment                     | 121(37.4%)                | 35.8%                     | 40.8%                        | .383     |
| <i>Substance Use (1+<br/>days)*</i>             |                           |                           |                              |          |
| Alcohol   | 230 (68.7%)               | 68.0%                     | 70.1%                        | .667     |
| All other drugs                                 | 178(53.1%)                | 50.4%                     | 58.9%                        | .523     |
| <i>Treatment Use (1+<br/>days)*</i>             |                           |                           |                              |          |
| Formal treatment<br>modalities                  | 194(54.5%)                | 49.2%                     | 65.8%                        | .003     |
| Informal treatment<br>modalities                | 216(60.7%)                | 57.9%                     | 66.7%                        | .180     |

\* p-values for longitudinal measures obtained from bivariate generalized estimating equation models.

<sup>1</sup> Race percentages exceed 100% because participants were permitted to select more than one race.

<sup>2</sup> Hispanic / non-Hispanic ethnicity was measured independently from race.

**Table 2.**

Reductions in alcohol and drug use attributable to sex and treatment utilization (unadjusted), N=335.

|                    | <b>Alcohol Use<br/>OR (95% CI)</b> | <b><i>p</i></b> | <b>Drug Use<br/>OR (95% CI)</b> | <b><i>p</i></b> |
|--------------------|------------------------------------|-----------------|---------------------------------|-----------------|
| Female sex         | .90(.55–1.47)                      | .667            | 1.16(.74–1.83)                  | .523            |
| Formal Treatment   | .80(.74-.87)                       | <.001           | .40(.36-.44)                    | <.001           |
| Informal Treatment | .55(.50-.62)                       | <.001           | .46(.41-.51)                    | <.001           |
| Mandated treatment | .99(.62–1.58)                      | .977            | .53(.39–1.00)                   | .052            |
| Arm                |                                    |                 |                                 |                 |
| 1                  | Ref                                |                 | Ref                             |                 |
| 2                  | 1.34(.77–2.35)                     | .305            | .79(.47–1.35)                   | .394            |
| 3                  | 1.25(.71–2.20)                     | .450            | .90(.54–1.51)                   | .695            |
| Site               | .96(.61–1.51)                      | .856            | 2.18(1.41–3.38)                 | <.001           |
| Race               |                                    |                 |                                 |                 |
| White              | Ref                                |                 | Ref                             |                 |
| Black              | .97(.60–1.58)                      | .907            | 1.44(.88–2.37)                  | .148            |
| Other Race         | 1.04(.51–2.10)                     | .920            | 1.56(.84–2.88)                  | .156            |
| Ethnicity          |                                    |                 |                                 |                 |
| Non-Hispanic       | Ref                                |                 | Ref                             |                 |
| Hispanic           | .86(.48–1.55)                      | .619            | .46(.24-.90)                    | .024            |
| Age                | 1.01(.99–1.03)                     | .300            | .97(.95-.98)                    | <.001           |

*Note.* Because sex was not significantly associated with drug use, multivariate analyses (Table 3) were conducted only for alcohol use. Each race category was dummy coded to permit respondents to select more than one option.

**Table 3.**

Reductions in alcohol use attributable to sex and treatment utilization (adjusted), N=323.

|                                | Alcohol Use<br>OR (95% CI) | <i>p</i> |
|--------------------------------|----------------------------|----------|
| <b>Model 1 (Adjusted)</b>      |                            |          |
| Female sex                     | .94(.60–1.46)              | .775     |
| Formal Treatment               | .85(.79-.92)               | <.001    |
| Informal Treatment             | .94(.60–1.46)              | <.001    |
| Mandated treatment             | .46(.30-.73)               | .001     |
| Study Condition                |                            |          |
| Motivational Interviewing (MI) | Ref                        |          |
| Standard Probation (SAU)       | 1.30(.79–2.14)             | .301     |
| MAPIT                          | 1.11(.67–1.82)             | .685     |
| Site                           | 1.23(.79–1.90)             | .358     |
| Race                           |                            |          |
| White                          | Ref                        |          |
| Black                          | 1.10(.60–2.02)             | .769     |
| Other-Race                     | 2.18(1.12–4.22)            | .022     |
| Ethnicity                      |                            |          |
| Non-Hispanic                   | Ref                        |          |
| Hispanic                       | .36(.16-.84)               | .018     |
| Age                            | 1.02(1.00–1.03)            | .105     |
| Wald $\chi^2$                  | 145.00                     | <.001    |

*Note.* Each race category was dummy coded to permit respondents to select more than one option.

**Table 4.**

Effects of sex and treatment utilization on reduced alcohol use (adjusted), N=323.

|                                | <b>Model A<br/>Formal treatment -&gt;<br/>Alcohol Use<br/>OR (95% CI)</b> | <i>p</i> | <b>Model B<br/>Informal<br/>treatment -&gt;<br/>Alcohol Use<br/>OR (95% CI)</b> | <i>p</i> |
|--------------------------------|---|----------|---|----------|
| <b>Model 2 (Interaction)*</b>  |   |          |   |          |
| Female Sex                     | 1.61(.98–2.66)  | .062     | .82(.48–1.38)   | .456     |
| Formal Treatment               | .74(.67-.81)  | <.001    | .85(.78-.92)  | <.001    |
| Informal Treatment             | .58(.53-.64)  | .581     | .59(.52-.67)  | <.001    |
| Mandated treatment             | .12(.06-.21)  | <.001    | .48(.31-.74)  | .001     |
| Study Condition                |   |          |   |          |
| Motivational Interviewing (MI) | Ref   |          | Ref   |          |
| Standard Probation (SAU)       | .99(.56–1.73)   | .966     | 1.30(.79–2.13)  | .297     |
| MAPIT                          | .79(.46–1.35)   | .395     | 1.13(.69–1.85)  | .619     |
| Site                           | 2.51(1.54–4.10)   | <.001    | 1.18(.76–1.83)  | .439     |
| Race                           |   |          |   |          |
| White                          | Ref   |          | Ref   |          |
| Black                          | 1.18(.59–2.34)  | .642     | 1.08(.59–1.98)  | .791     |
| Other Race                     | 5.04(2.36–10.74)  | <.001    | 2.09(1.08–4.05)   | .029     |
| Ethnicity                      |   |          |   |          |
| Non-Hispanic                   | Ref   |          | Ref   |          |
| Hispanic                       | .18(.06-.54)  | .002     | .34(.15-.78)  | .011     |
| Age                            | 1.00(.98–1.02)  | .831     | 1.02(1.00–1.03)   | .105     |
| Sex*Treatment <sup>†</sup>     | 1.46(1.27–1.68)   | <.001    | .88(.68–1.13)   | .318     |
| Wald $\chi^2$                  | 207.02  | <.001    | 143.63  | <.001    |

\* Adjusted for sex, MAPIT experimental condition, race/ethnicity, age and study site.

*Note.* Each race category was dummy coded to permit respondents to select more than one option.<sup>†</sup> Sex\*Treatment represents formal treatment (Model A) and informal treatment (Model B).