AN INTERSECTIONAL ANALYSIS OF THE ASSOCIATION BETWEEN PRIOR OFFENSE HISTORIES AND RECIDIVISM AMONG VIOLENT OFFENSE ARRESTEES:
FINAL REPORT

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An Intersectional Analysis of the Association between Prior Offense Histories and Recidivism among Violent Offense Arrestees: Final Report[1]

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Michigan Justice Statistics Center

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About the Authors

Rebecca Stone, PhD, MPH, is an interdisciplinary health and justice scholar with expertise in qualitative, participatory, and mixed-methods research designs. She specializes in the intersection of gender, substance use, and narratives of personal change. Her dissertation research involved in-depth interviews with a community sample of women who used alcohol and other drugs during their pregnancies, exploring their narratives of motherhood, stigmatization, and interaction with the health care system. More recently, she has focused on the relationship between gendered victimization and substance use, including a participatory research project on intimate partner violence and opioid use disorder in rural Vermont. Dr. Stone is also the co-organizer of a National Science Foundation-supported science communication workshop for early-career researchers. She is an alumna of the Robert Wood Johnson Foundation's Interdisciplinary Research Leaders fellowship and received the 2022 Community Engaged Scholar Award from the American Society of Criminology Division on Feminist Criminology.

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EXECUTIVE SUMMARY

Prior research has demonstrated that prior convictions for violent offenses are predictive of future re-offending. The current study sought to extend this line of research in two significant ways. First, most of the prior research examines re-offending patterns among those convicted and incarcerated. The current study extends this line of research by examining patterns of re-offending among people *arrested* for a violent crime, regardless of whether the arrest resulted in conviction and incarceration. Second, few prior studies have carefully examined whether these patterns differ for people of different racial and gender characteristics. For example, do re-offending patterns of White males differ from those of Black males, White females, or Black females? Is criminal history equally predictive of future criminal justice system contact across these characteristics?

Objectives

1. A detailed analysis comparing the criminal histories between individuals of varying racial/gender combinations, particularly describing the nature of criminal histories among violence-involved women.

2. A survival analysis to ask whether criminal history is equally predictive of future recidivism among racial/gender combinations.

Background Outline of Study

- Broad overview - prior research on criminal history and recidivism
- Incorporating gender and racial differences in prior justice system involvement
- Prior research on gender / race differences in the salience of criminal history for predicting recidivism.

Analyses

This study builds upon a complementary research project conducted by the Michigan Statistical Analysis Center (MI-SAC) in cooperation with the Michigan State Police. The sample is based on all those arrested in the state of Michigan during 2017 for a violent crime (N=11,081).

- Descriptive analysis – criminal history metrics, group differences
- Survival analysis – group differences in hazard and survival
- Survival analysis – group differences in association between criminal history and hazard of recidivism

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Summary of Findings

Objective 1: Descriptive analysis of criminal histories

- The sample consists of individuals arrested for violent offenses in Michigan in calendar year 2017. The four race / gender combinations considered – White male, White female, Black male, and Black female – all differed in their criminal histories prior to their 2017 originating offense (Table 2)

    o Compared to other groups, Black males had more previous arrests, were younger at the time of their first arrest, were more likely to be arrested prior to age 18, and more likely to have prior arrests for assault, robbery, and drug offenses.

    o Compared to other groups, White females typically had the fewest prior arrests, were older at their first arrest, were the least likely to have an arrest prior to 18 but were just as likely as Black females to have a charge prior to 18. White females were less likely than males, but more likely than Black females to have a prior home invasion charge or prior drug charges.

    o Black females had criminal histories that were typically closer to White males than White females. For instance, compared to White males Black females had roughly equivalent prior arrests and age of first arrest. Compared to White females, Black females had more prior arrests, were more likely to have been arrested prior to age 18, more likely to have a prior assault or robbery charge, but less likely to have a prior home invasion or drug charge.

    o Compared to other groups, White males were more likely than females, but less likely than Black males, to have prior weapons arrests, to have been arrested prior to 18, to have prior assault, other violent, or drug charges. White males were more likely than all groups to have a prior sex offense on their record.

Objective 2: Differences in recidivism likelihood, and whether criminal history differentially predicts recidivism across the race / gender groupings.

- Three recidivism outcomes were considered – any new charge, a new violent charge, or a new non-violent charge. Typically, the risk of recidivism is the highest at the beginning of the observation window, and then gradually declines over time (Figure 4).

- After controlling for criminal history, for any new charge (Figure 1) and new non-violent charges (Figure 3), Black Females were less likely to recidivate than the other groups. White Males, Black Males, and White Females all had similar recidivism likelihoods.

- For new violent charges (Figure 2), Black males were more likely than White males and White females to recidivate.

- Cox proportional hazards models suggested that the criminal history predictors of recidivism were relatively consistent between the groups (Tables 3, 4, and 5)

- There is some variation in the association between the instant 2017 offense, and the hazard of recidivism. For instance, the instant offense did little to predict recidivism among females, but provided some predictive value for males. For White males, a 2017 weapons offense increased the hazard of recidivism by ~17%, and for Black males such an offense decreased the hazard by ~28%. However, multi-model comparison of interaction effects suggested that the relationship between instant offense and recidivism hazard was indistinguishable between race / gender combinations.

- For any new charge, prior arrests, the presence of a prior drug charge, and age in 2017 were differentially associated with recidivism across the race / gender groups.

  o **Prior arrests:** Typically, more prior arrests translated to a lower survival probability. However, this effect was most pronounced for White females, where each additional prior arrest was associated with a significantly higher likelihood of recidivism. The effect was less pronounced among Black males, where additional prior arrests were less predictive of a new charge, compared to other groups.

  o **Prior drug charge:** On average, a prior drug charge was associated with a lower likelihood of survival (higher hazard for recidivism). However, for Black males and Black females, a prior drug charge was not predictive of recidivism likelihood.

  o **Age in 2017:** On average, younger individuals had lower survival probabilities, and the likelihood of survival increased as older individuals were considered. However, for Black males and Black females, survival probabilities increased more steeply across the age distribution, suggesting that young Black individuals experience significantly higher hazard for a new charge compared to their White counterparts.

- For new violent and new non-violent charges, a similar age difference is observed, where survival probabilities increase much more steeply for Black males (new violent and non-violent charges) and Black females (new non-violent charges) as age increases. These findings reinforce the notion that the risk of recidivism associated with being a young person are significantly higher for Black individuals than for Whites.

Conclusions and Recommendations

The overall pattern of prior violent crime arrests being predictive of future offending was supported in this study. Having said this, there were differences in the magnitude of these relationships by different combinations of race and gender patterns. For example, although a prior drug arrest was predictive of recidivism for White males and White females, prior drug arrests were not predictive for Black males and Black females – suggesting that this information provides a poor signal for future justice system contact. Risk assessment tools that consider prior drug arrests may thus over-predict re-offending for Black people arrested on a violent crime charge. Thus, judicial and correctional personnel utilizing risk assessment tools should review these instruments to see if they include these items and consider dropping these items (or at least assessing their validity for different demographic groups).

The findings also suggest some variation in the age-crime relationship across these different demographic groups. Typically, being young (e.g., under age 25) is considered a risk factor for justice system involvement. The results here suggest that this is especially true for young Black males and females, whereas older individuals were considered, the risk of experiencing a re-arrest dropped more steeply than for white males and females. This patterning of results highlights the need to consider strengths-based correctional intervention strategies, particularly for young people of color. If the excess recidivism risk associated with being a young minority can be addressed, sizable declines in future justice system involvement could be a possibility.

Background

A popular aphorism in criminal justice and elsewhere is that 'The best predictor of future behavior is past behavior.' When applied to criminal offending, the expectation is that those with more substantial criminal histories or prior offense records will be most likely to offend again. Prior records or offense histories are taken into consideration at multiple decision-making points in the criminal justice system, including sentencing (Hester, Frase, Roberts & Mitchell, 2018) and classification (Hamilton, 2015). Consideration of criminal history is defended as a form of risk management (Frase et al., 2015): if those with prior records of offending are more likely to reoffend, they should be treated differently by the justice system. For example, in their analysis of sentencing guidelines in Pennsylvania, Ulmer and Kramer (1996, p. 29) described the view that "prior record is primarily used to identify offenders who are at increased risk of committing future crimes."

The idea that past offending is predictive of future offending does have some empirical support. Collins' (2010) meta-analysis of studies on violent recidivism found that the greatest amount of violent recidivism was associated with longer criminal histories, especially histories of violent offenses. However – and perhaps unsurprisingly -- the true relationship between past offending and future offending, especially for violent crime, appears to be far more complicated than a pithy phrase can express. For example, while a history of violent offending may predict future violence, violent offenders recidivate at lower rates than other categories of offenders (Prescott, Pyle & Starr, 2020). Overall, men of all races and ethnicities have higher recidivism rates than women (Piquero et al., 2015; Hester, 2019; Durose et al., 2014). White offenders who were previously incarcerated tend to have lower recidivism rates than other races and ethnicities (Hester, 2019; Piquero et al., 2015); Black men tend to have higher recidivism rates than their White counterparts (DuRose et al., 2014; Piquero et al., 2015; Wehrman, 2010) despite sometimes having lower risk scores (Ropes Berry et al., 2020).

Most research on recidivism uses populations of people who have been convicted and incarcerated. It is difficult to find literature on reoffending after arrest. This is a key area worth examining, as far more people are arrested than are ever convicted and incarcerated *and* likelihood of arrest is influenced not only by individual behavior, but by social forces that shape the likelihood of surveillance and detection. As Stolzenberg and colleagues (2020, p. 33) argue, it is a "dubious assumption" that people with prior criminal records do *not* have an inflated likelihood of rearrest, as people who have previously been arrested are viewed as "criminally predisposed." Overall, a criminal suspect with a prior record is more likely than a suspect without a criminal record to be arrested by police (Stolzenberg et al, 2020).

However, a further consideration is whether information gleaned from criminal histories provides equally strong "signals" for future criminal involvement across the spectrum and race, ethnicity, and gender. Again, previous research has suggested the importance of race and gender effects in the relationship between prior arrest and rearrest. In a meta-analysis of 40 arrest studies that analyzed 23 different data sets, Kochel et al. (2011) found that racial minority citizens were at least 30% more likely than Whites to be arrested by police. Stolzenberg and colleagues (2020) discuss the possibility that this apparent racial disparity in arrest may be related to the effects of arrest history, whereby one arrest leads to more arrests. Indeed, research indicates that Black/African American individuals have more substantial prior records *and* that criminal

history mediates race effects in arrest (Skeem & Lowenkamp, 2016) and sentencing (Frase et al., 2015; Ulmer, Painter-Davis & Tinik, 2016), perhaps as unequal likelihoods of detection and arrest get "baked in" to individual criminal records (Brame, 2016).

As previously noted, prior records are considered at many stages of the criminal justice system, including in sentencing and in risk assessment and classification. Prior record enhancements to punishment have been shown to have differential impacts on people of color (Frase, 2013; Tonry, 2016; Zatz, 2016), even as prior records scoring systems are known to be flawed predictors of recidivism (Hester, 2019). Hester (2019) found only 59% accuracy for the Pennsylvania Prior Record Score, for example. An analysis of the Ohio Youth Assessment System-Disposition Tool found that criminal history items contributed to its predictive validity for White boys, but not White girls or Black boys or girls (Miller, Campbell & Larnell, 2021). Thus, there is good reason to suspect that using criminal history or prior record to predict recidivism may not be equally valid across all subpopulations of offenders.

The research on criminal history and recidivism leads us to believe that we will detect race and gender differences in the likelihood of rearrest after arrest for a violent offense. The contribution of the current effort is to leverage a detailed statewide criminal history records database to examine race and sex differences in the likelihood of recidivism, and the association between criminal history metrics and subsequent criminal justice system involvement. To our knowledge, this analysis is the first to look at recidivism for a population of people arrested for violent offenses through an intersectional analysis that considers both race and sex.

Current Study

The present study builds upon an earlier study conducted by the MI-SAC in cooperation with the Michigan State Police. The sample consists of everyone in the State of Michigan arrested for a violent crime charge in 2017 (N=11,081).[2] The follow-up period for the sample consisted of the duration from the date of their originating 2017 arrest, up until January 27th, 2023 (the date of the data extraction). This produced a maximum possible follow-up time of 2,217 days, or just over 6 years.

However, one complication with the follow-up period is that individuals are initially arrested, and then it is possible that they experienced some period of incarceration – whether a brief period in jail or a longer period in prison. During these periods of confinement individuals are not actually at risk of recidivism, leading an analysis of the raw duration between initial arrest and subsequent justice system contact as an overestimate of survival time, biasing

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[2] This sample size differs slightly from another report using the same sample (Rydberg et al., 2023). The reason for this is that in the current analysis individuals with unknown race/ethnicity or gender information were excluded from the analysis. The research team had considered techniques for attempting to impute missing race/ethnicity information on the basis first and last names (e.g., Xie, 2022). Pilot testing of the most current techniques did an unsatisfactory job of predicting race for individuals for which this information was already known, so its use was not considered beyond that point. Instead, we made the compromise of restricting the analysis of individuals who were already identified as White or Black. Clearly, a preference would be for more systematic measurement of race and ethnicity in these sorts of official record data (McCormack et al., 2023).

subsequent recidivism estimates (Ostermann, 2013). In the current data, whether an individual was confined, or for how long, was not always known. Instead, an open-string comment field contained information that documented whether an individual was confined to jail or prison, and what the minimum or maximum sentence was. The research team parsed these text fields to identify those who were confined, and then what the minimum confinement duration was. Prior research on parolees in Michigan (Rydberg et al., 2023) suggested that incarcerated individuals often spend around 50% of the minimum sentence prior to being released to parole supervision. With this being the case, we subtracted 50% of the calculated incarceration time for each individual with this information available to produce an adjusted follow-up duration.

Basic Descriptive Patterns of Sample

As indicated in Table One, White people comprised the largest group of arrestees (53%), with Black people accounting for 47 percent. Males accounted for 85 percent of arrestees. The average age of people arrested for a violent crime was 32. The most common violent crime arrest was for an assault (53%) followed by a weapons offense (29%). The next most common arrest charges were for home invasion (9%), sex offense (8%) and robbery (7%). The average age at first arrest was 23 and the group averaged 3.7 prior adult arrests before this 2017 violent crime arrest. Just under one-third had a prior juvenile arrest (28%) with 21 percent having a juvenile charge.[3]

We now turn to the analyses of how these patterns may differ by race and gender.

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[3] The juvenile arrests and charges are likely under-estimates as they do not include charges that may have been expunged due to compliance with the juvenile court conditions for expungement.

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Table 1. Descriptive Statistics (N = 11,081)

Variable	n (%)	Mean (SD)	Range
Dependent Variables			
Any new charge	4,070 (36.73)		
Time to any new charge (days)		1,496.68 (718.46)	1 – 2,217
New violent crime charge	1,116 (10.07)		
Time to new violent charge		1,836.89 (483.38)	1 – 2,217
New non-violent crime charge	3,124 (28.19)		
Time to new non-violent charge		1,597.32 (679.40)	1 – 2,217
Instant Offense Charge			
Weapons offense	3,196 (28.84)		
Assault	5,912 (53.35)		
Robbery	743 (6.71)		
Home invasion	1,049 (9.47)		
Sex offense	941 (8.49)		
Other violent	623 (5.62)		
Criminal History			
Prior arrest instances		3.70 (4.17)	0 - 54
Prior weapons arrests		0.14 (0.45)	0 - 6
Age of first arrest		23.44 (10.14)	0 – 94.75
Arrested prior to age 18	3,116 (28.12)		
Prior charge instances		2.40 (3.14)	0 - 34
Prior firearm charge	474 (4.28)		
# Prior firearm charges		0.06 (0.34)	0 - 5
Prior assault charge	2,135 (19.27)		
Prior robbery charge	664 (5.99)		
Prior home invasion charge	849 (7.66)		
Prior sex offense charge	360 (3.25)		
Prior other violence charge	283 (2.55)		
Prior drug charge	1,871 (16.88)		
Charged prior to age 18	2,283 (20.60)		
Motor theft prior to 18	197 (1.78)		
Demographics			
Race			
White	5,888 (53.14)		
Black	5,193 (46.86)		
Female	1,610 (14.53)		
Age (as of 01/01/2017)		32.45 (12.20)	10 - 94
Body Mass Index (BMI)		26.47 (5.60)	13 - 100

Table 2. Descriptive Statistics and Differences for Race and Gender Combinations (N = 11,081)

Variable	White Male (N = 4,931)	White Female (N = 957)	Black Male (N = 4,540)	Black Female (N = 653)	Difference χ^2 or F (p)
Dependent Variables	n (%) / M (SD)	n (%) / M (SD)	n (%) / M (SD)	n (%) / M (SD)	
Any new charge	1,846 (37.44)	347 (36.26)	1,710 (37.67)	167 (25.57)	37.83 (<.001)
Time to any new charge (days)	1,470.83 (723.13)	1,504.43 (745.79)	1,499.53 (711.67)	1660.76 (666.65)	13.59 (< .001)
New violent crime charge	450 (9.13)	70 (7.31)	542 (11.94)	54 (8.27)	32.71 (< .001)
Time to new violent charge	1,836.50 (473.75)	1,911.18 (415.49)	1,812.54 (512.06)	1,900.36 (422.94)	15.19 (< .001)
New non-violent crime charge	1,419 (28.78)	275 (28.74)	1,295 (28.52)	135 (20.67)	19.45 (< .001)
Time to new non-violent charge	1,571.14 (688.23)	1,599.86 (711.57)	1,607.30 (668.27)	1,721.96 (624.40)	10.12 (< .001)
Instant Offense Charge					
Weapons offense	997 (20.22)	140 (14.63)	1,920 (42.29)	139 (21.29)	691.11 (< .001)
Assault	2,756 (55.89)	624 (65.20)	2,098 (46.21)	434 (66.46)	204.90 (< .001)
Robbery	182 (3.69)	50 (5.22)	444 (9.78)	67 (10.26)	156.77 (< .001)
Home invasion	547 (11.09)	101 (10.55)	358 (7.89)	43 (6.58)	36.11 (< .001)
Sex offense	682 (13.83)	24 (2.51)	232 (5.11)	3 (0.46)	346.01 (< .001)
Other violent	299 (6.06)	73 (7.63)	203 (4.47)	48 (7.35)	24.08 (< .001)
Criminal History					
Prior arrest instances	3.65 (4.09)	2.38 (2.97)	4.20 (4.38)	2.59 (4.03)	70.71 (< .001)
Prior weapons arrests	0.08 (0.33)	0.02 (0.14)	0.26 (0.59)	0.05 (0.21)	168.80 (< .001)
Age of first arrest	24.47 (11.24)	27.49 (11.28)	21.18 (7.75)	25.54 (10.69)	158.60 (< .001)
Arrested prior to age 18	1,282 (26.00)	136 (14.21)	1,581 (34.82)	117 (17.92)	237.14 (< .001)
Prior charge instances	2.68 (3.33)	1.69 (2.32)	2.39 (3.09)	1.34 (2.57)	54.63 (< .001)
Prior assault charge	892 (18.09)	112 (11.70)	1,034 (22.78)	97 (14.85)	83.69 (< .001)
Prior robbery charge	166 (3.37)	9 (0.94)	462 (10.18)	27 (4.13)	32.31 (< .001)
Prior home invasion charge	420 (8.52)	33 (3.45)	384 (8.46)	12 (1.84)	64.50 (< .001)
Prior sex offense charge	237 (4.81)	4 (0.42)	118 (2.60)	1 (0.2)	88.46 (< .001)

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Prior other violence charge	161 (3.27)	13 (1.36)	104 (2.29)	5 (0.8)	25.17 (< .001)
Prior drug charge	728 (14.76)	104 (10.87)	1,000 (22.03)	39 (5.97)	181.43 (< .001)
Charged prior to age 18	1,050 (21.29)	115 (12.02)	1,040 (22.91)	78 (11.94)	89.23 (< .001)
Motor theft prior to 18	91 (1.85)	8 (0.84)	98 (2.16)	0 (0.00)	20.58 (<.001)
Demographics					
Age (in 2017)	33.93 (12.71)	33.76 (11.30)	30.68 (11.60)	31.63 (11.93)	61.62 (< .001)
Body Mass Index (BMI)	26.38 (5.29)	26.18 (6.50)	26.28 (5.38)	28.88 (7.19)	43.92 (< .001)

Group Differences in Hazard of Recidivism

We performed this analysis through Bayesian discrete time hazard models, which are logit regression models estimating the likelihood of recidivism in each month, conditional on the individual had survived up until that point. We initially considering whether the hazard of recidivism differed between the race and gender combinations. If the hazards did differ, we considered which specific groups were distinguishable from the others. In all instances the proportional odds assumption was confirmed, suggesting that the hazard functions for each recidivism measure are of similar shape, differing only in relative height between the race/gender combinations considered.

Figures 1, 2, and 3 below display pairwise contrasts of the logit hazard coefficients for each group. For any new charge, and new non-violent charges similar patterns are observable – Black females have systematically lower likelihood of recidivism than any other group, while White males, White females, and Black males all have very similar hazards, with posterior differences close to zero and with uncertainty spanning both positive and negative parameter values. The exception is in Figure 2, where Black males are observed to have a higher hazard of a new violent charge relative to White males and White females. Black females also appear to show a relatively higher hazard than these groups as well, but after seeing the data the model cannot rule out the possibility that Black females have slightly lower hazards than White males or females.
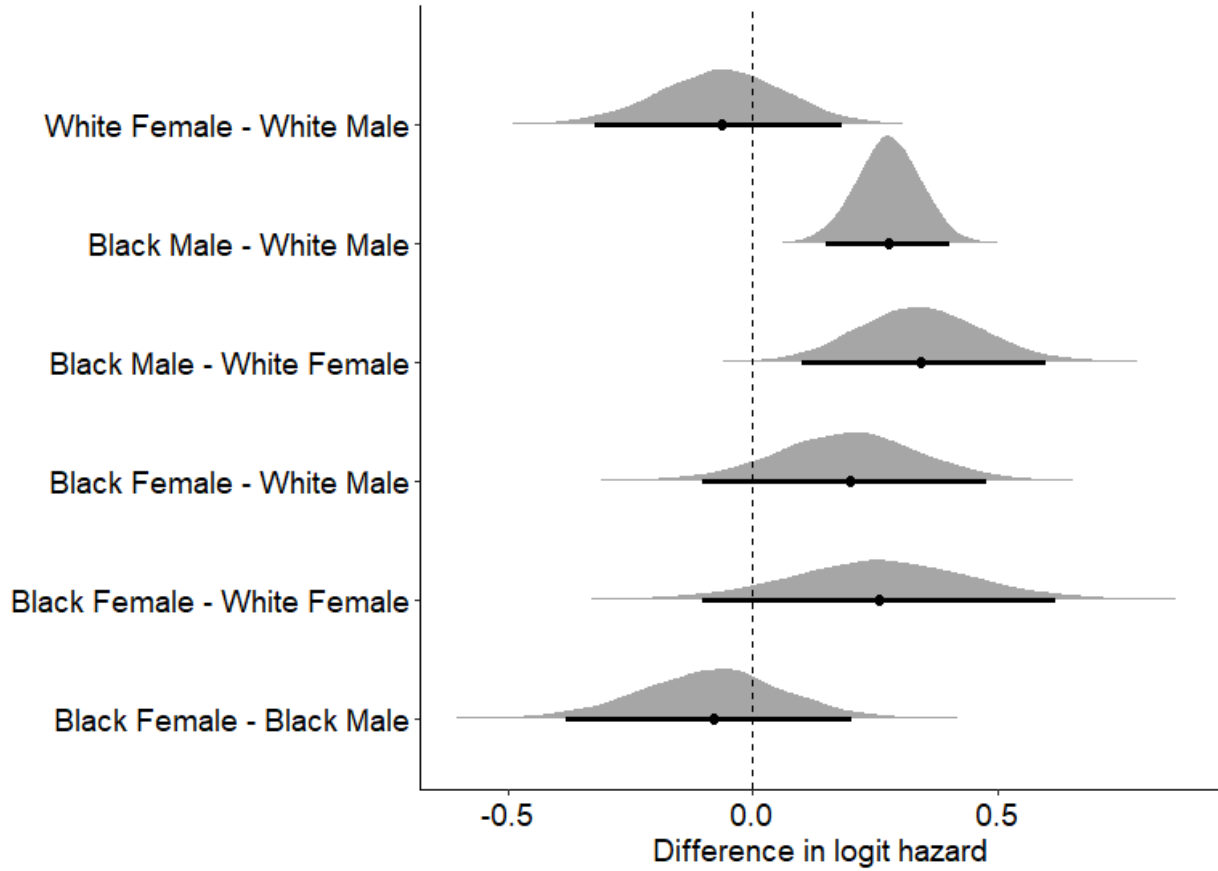
Figure 1. Posterior Group Contrasts in Hazard of Any New Charge
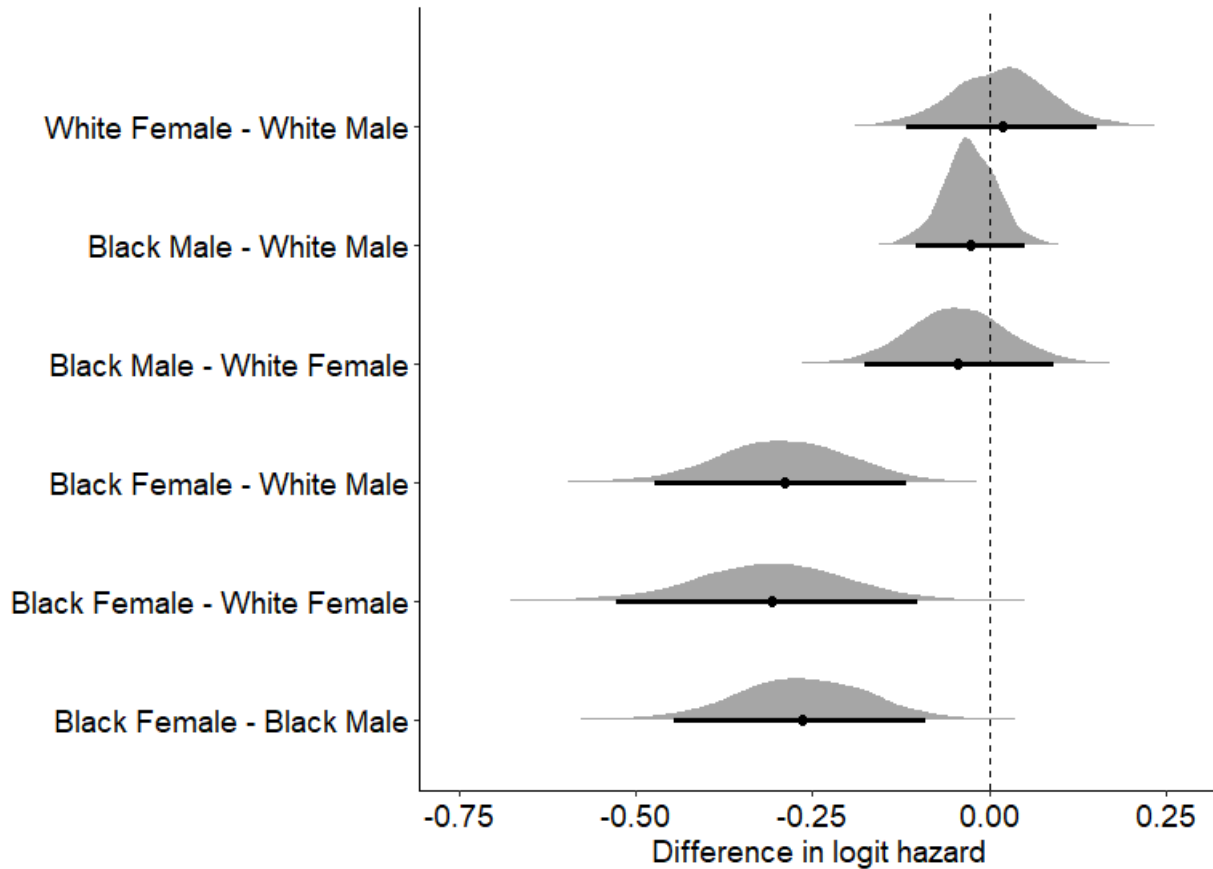**Point Estimates and 95% Credible Intervals**
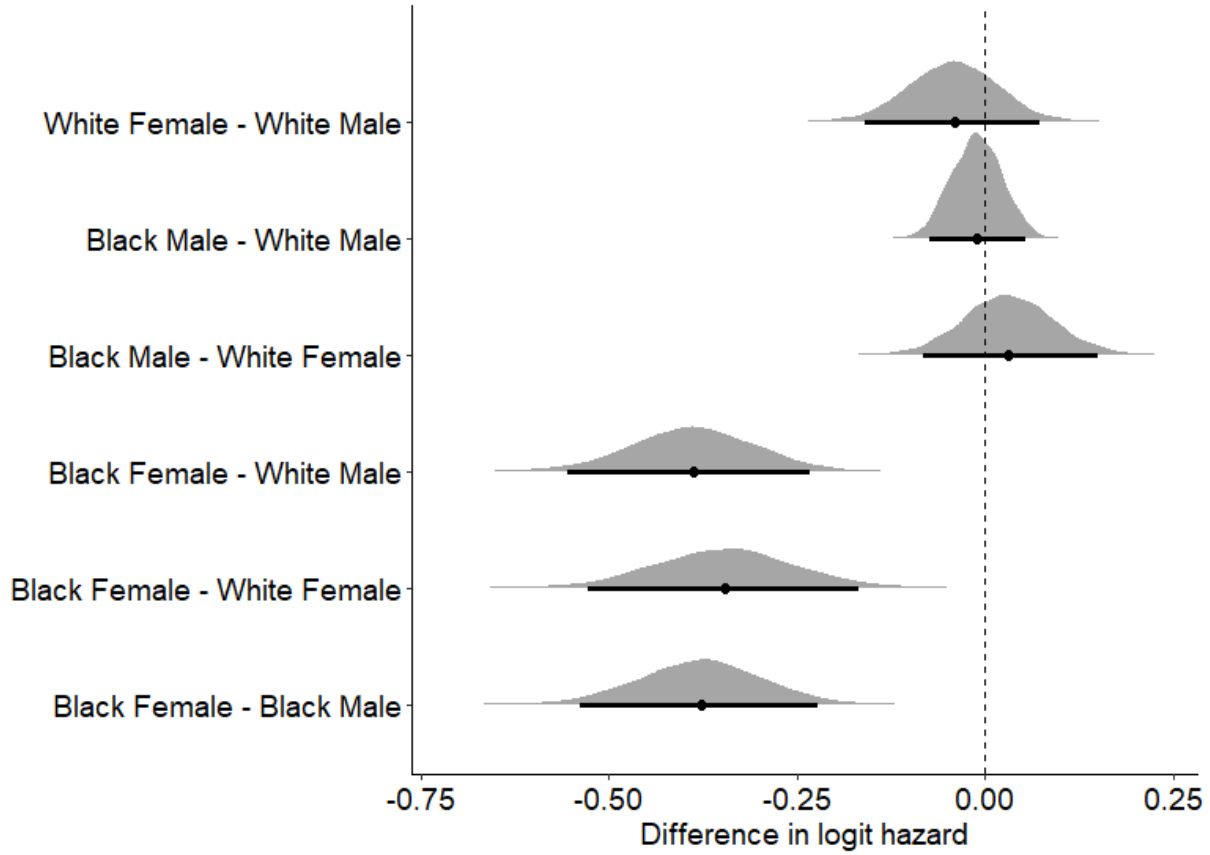
Figure 2. Posterior Group Contrasts in Hazard of a New Violent Charge
Point Estimates and 95% Credible Intervals

Figure 3. Posterior Group Contrasts in Hazard of a New Non-Violent Charge
Point Estimates and 95% Credible Intervals

Below, Figure 4 displays fitted hazard and survival curves for any new charge, new violent charges, and new non-violent charges by race and gender combinations. These estimates show that – for all groups – the hazard of recidivism declines over time. This means that the longer an individual has "survived" in the community without incurring a new charge, their likelihood of receiving a new charge gradually decreases. There is considerable overlap in the uncertainties of the estimates (consistent with Figures 1, 2, and 3 above), but comparing the Any New Charge and New Violent Charge panels highlights the shifting position of Black males, where their survival curve is indistinguishable from all save for Black females in the top right panel, but is visibly lower in the middle right panel.
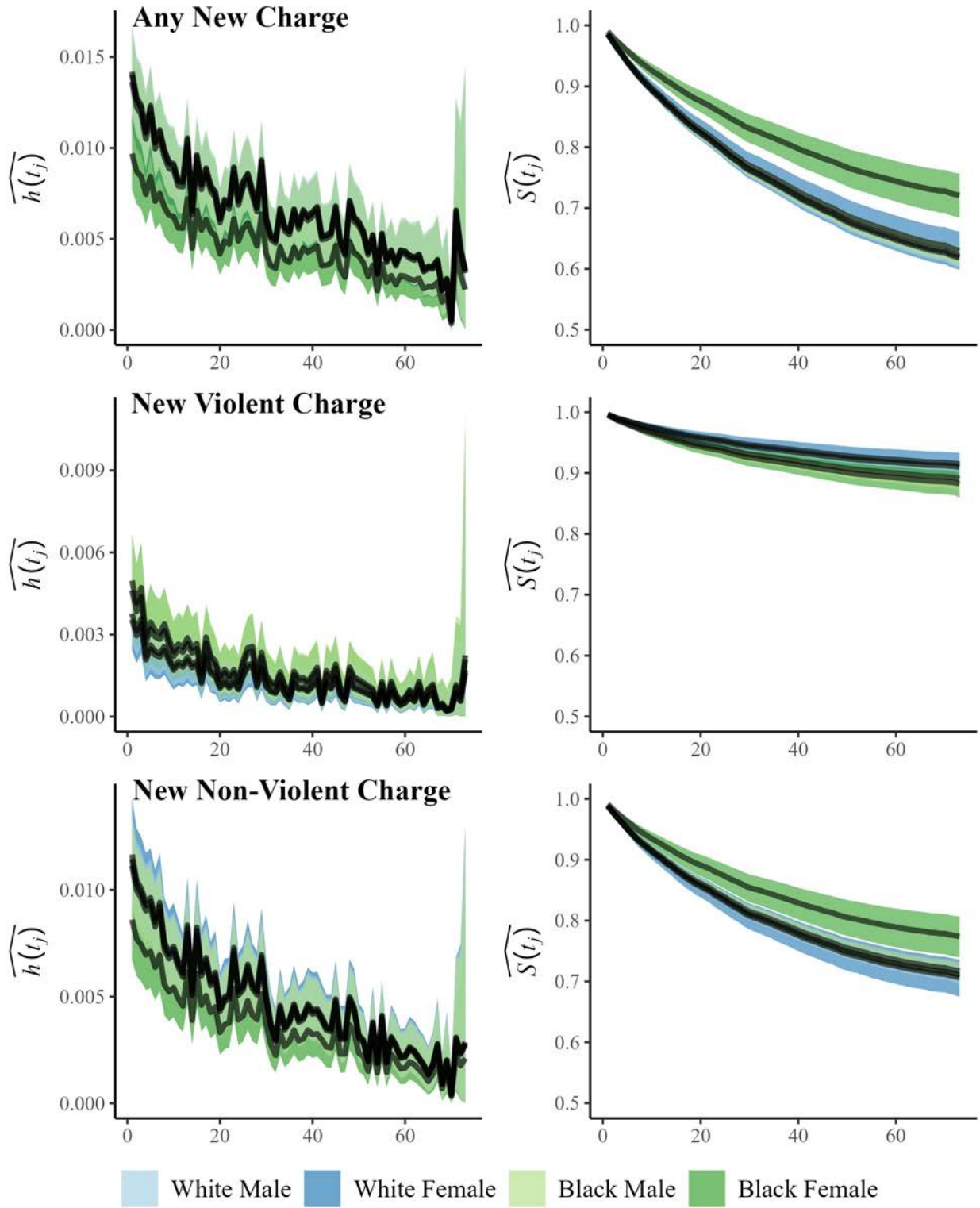
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Figure 4. Discrete Hazard (left) and Survival (right) Curves by Race / Gender Combinations
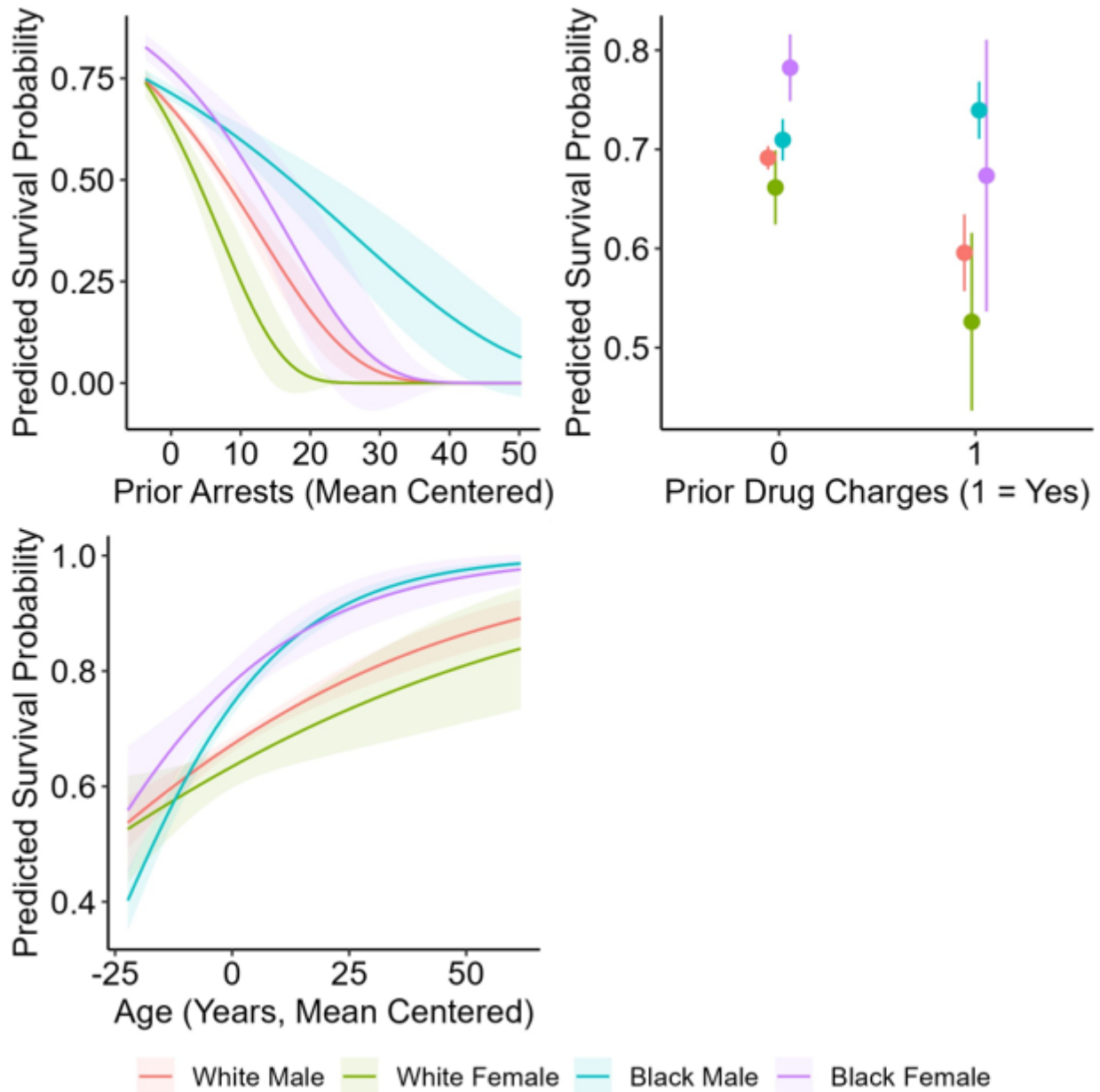**Point Estimates and 95% Credible Intervals**

Table 3. Any new charge – Cox proportional hazards models describing relationship between criminal history and recidivism across race / gender combinations

Race / Gender → Variable ↓	White Male (N = 4,931)			White Female (N = 957)			Black Male (N = 4,540)			Black Female (N = 653)		
Instant Offense	HR	p		HR	p		HR	p		HR	p	
Weapons Offense	1.173	.015	*	0.949	.815		0.715	< .001	*	0.675	.197	
Assault	1.503	< .001	*	1.118	.610		1.042	.513		0.752	.350	
Robbery	1.025	.085		0.890	.677		0.625	< .001	*	0.837	.618	
Home Invasion	1.201	.016	*	1.565	.063		1.317	.049	*	0.563	.149	
Other Violent	0.709	.004	*	1.082	.788		0.647	.002	*	0.421	.056	
Criminal History												
Incarcerated	0.794	.002	*	1.007	.952		0.723	< .001	*	0.900	.523	
# Prior Arrests	1.036	< .001	*	1.079	< .001	*	1.055	< .001	*	1.097	< .001	*
Age at First Arrest	0.989	.011	*	0.965	< .001	*	1.009	.348		0.996	.832	
Arrested Prior to 18	1.040	.654		0.840	.276		0.952	.428		1.268	.234	
Prior Assault Charge	1.014	.821		1.122	.472		1.310	< .001	*	1.223	.377	
Prior Robbery Charge	1.144	.239		2.201	.049	*	1.200	.020	*	1.004	.992	
Prior Home Invasion Charge	1.060	.446		1.310	.242		0.963	.646		0.633	.353	
Prior Sex Offense Charge	0.835	.120		0.398	.362		1.038	.806				
Prior Other Violent Charge	1.082	.504		1.651	.204		0.932	.682		2.411	.231	
Prior Drug Charge	1.369	< .001	*	1.333	.073		1.001	.988		1.630	.119	
Motor Vehicle Theft under 18	1.329	.040	*	1.055	.910		1.113	.463				
Demographic Controls												
Age	0.977	< .001	*	0.993	.407		0.952	< .001	*	0.952	< .001	*
Body Mass Index	1.000	.715		1.001	.887		0.991	.078		1.009	.427	

Note: HR = Hazard ratio; * = p < .05; All models assessed for violations of proportional hazards using Schoenfeld residuals. When proportional hazards were violated for a variable, a time transformation was used to include an interaction with time. Only the instantaneous hazard parameter is reported when such violations were present and accounted for. Certain variables omitted from Black Females sub-model due to singularities.

Figure 5. Group Differences in Association between Criminal History and Predicted Survival Probabilities - Any New Charge
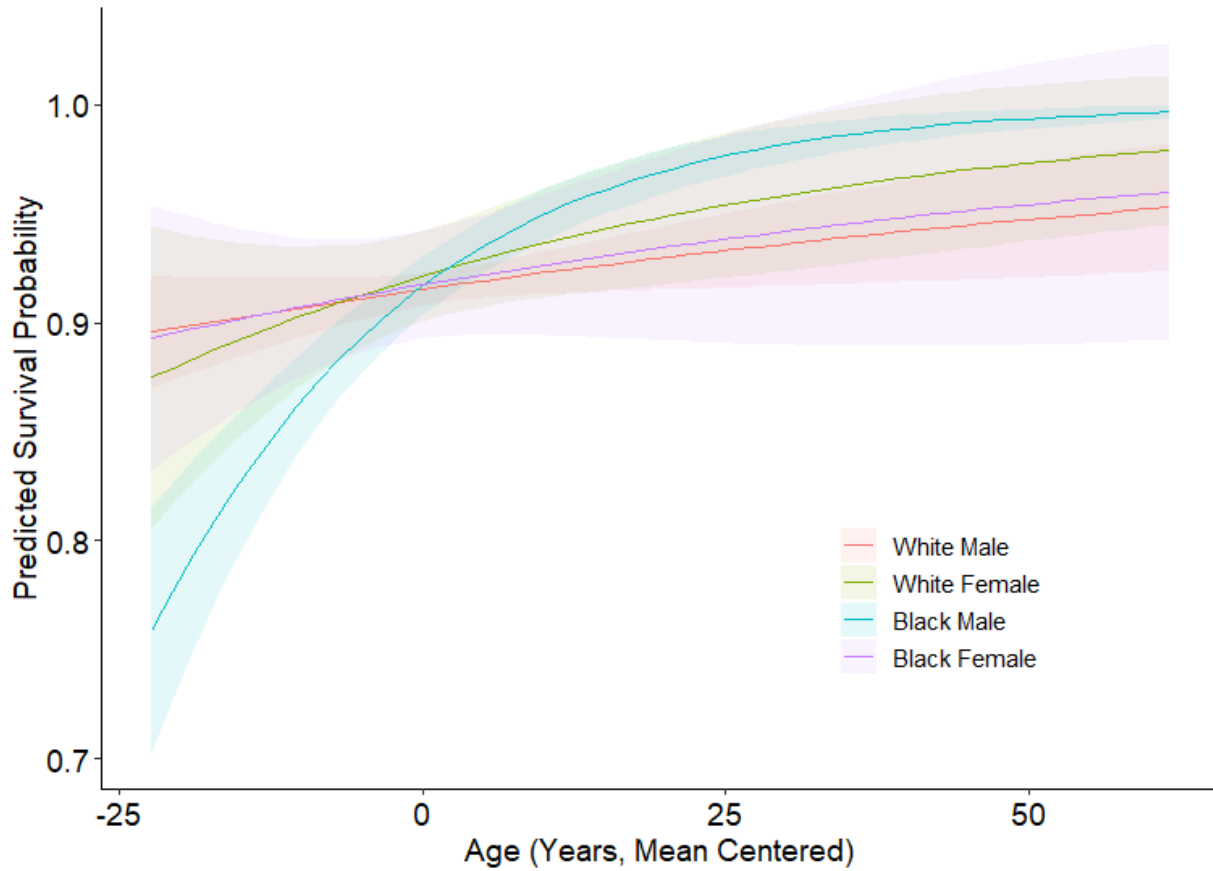
Table 4. New violent charge – Cox proportional hazards models describing relationship between criminal history and recidivism across race / gender combinations

Race / Gender → Variable ↓	White Male (N = 4,931)			White Female (N = 957)			Black Male (N = 4,540)			Black Female (N = 653)		
Instant Offense	HR	p		HR	p		HR	p		HR	p	
Weapons Offense	0.704	.020	*	0.735	.609		0.594	.002	*	1.158	.761	
Assault	1.116	.380		2.061	.206		1.288	.028	*	1.775	.241	
Robbery	1.085	.742		1.117	.831		0.652	.014	*	2.448	.101	
Home Invasion	0.875	.440		0.943	.933		1.585	.037	*	0.248	.174	
Other Violent	0.627	.060		1.863	.358		0.808	.373		0.971	.966	
Criminal History												
Incarcerated	0.955	.631		0.897	.662		0.753	.041	*	0.795	.427	
# Prior Arrests	1.023	.129		1.104	.016	*	1.027	.041	*	1.090	.007	*
Age at First Arrest	0.987	.125		0.998	.937		0.980	.133		0.986	.647	
Arrested Prior to 18	1.263	.048	*	1.331	.390		0.990	.928		1.718	.143	
Prior Assault Charge	1.258	.058		1.905	.031	*	1.574	< .001	*	1.367	.401	
Prior Robbery Charge	1.504	.048	*	2.351	.257		1.042	.771		0.764	.628	
Prior Home Invasion Charge	1.013	.934		1.107	.851		1.137	.350		0.628	.550	
Prior Sex Offense Charge	0.857	.499		2.357	.408		1.868	.004	*			
Prior Other Violent Charge	1.161	.509		1.445	.722		0.918	.782				
Prior Drug Charge	1.162	.241		0.904	.789		0.822	.120		1.747	.267	
Motor Vehicle Theft under 18	1.048	.870		2.733	.120		1.684	.019	*			
Demographic Controls												
Age	0.991	.155		0.967	.113		0.941	< .001	*	0.979	.341	
Body Mass Index	0.996	.635		0.989	.589		0.987	.140		1.054	.001	*

Note: HR = Hazard ratio; * = p < .05; All models assessed for violations of proportional hazards using Schoenfeld residuals. When proportional hazards were violated for a variable, a time transformation was used to include an interaction with time. Only the instantaneous hazard parameter is reported when such violations were present and accounted for. Certain variables omitted from Black Females sub-model due to singularities.

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Figure 6. Group Differences in Association between Criminal History and Predicted Survival Probabilities - New Violent Charge

Table 5. New non-violent charge – Cox proportional hazards models describing relationship between criminal history and recidivism across race / gender combinations

Race / Gender → Variable ↓	White Male (N = 4,931)			White Female (N = 957)			Black Male (N = 4,540)			Black Female (N = 653)		
Instant Offense	HR	p		HR	p		HR	p		HR	p	
Weapons Offense	1.405	< .001	*	1.029	.908		0.843	.122		0.572	.125	
Assault	1.584	< .001	*	1.058	.817		1.096	.401		0.618	.184	
Robbery	0.941	.689		0.750	.381		0.723	.002	*	0.667	.334	
Home Invasion	1.258	.010	*	1.661	.058		1.003	.975		0.472	.109	
Other Violent	0.793	.082		0.992	.981		0.608	.003	*	0.341	.048	*
Criminal History												
Incarcerated	0.724	< .001	*	1.041	.750		0.710	< .001	*	0.952	.796	
# Prior Arrests	1.035	.002	*	1.044	.087		1.056	< .001	*	1.083	.001	*
Age at First Arrest	0.983	.001	*	0.959	.003	*	1.005	.606		1.009	.688	
Arrested Prior to 18	0.965	.604		0.844	.351		0.944	.416		1.437	.122	
Prior Assault Charge	1.046	.525		1.041	.829		1.205	.008	*	1.064	.814	
Prior Robbery Charge	1.191	.174		2.515	.034	*	1.302	.003	*	0.900	.800	
Prior Home Invasion Charge	1.118	.197		1.404	.197		1.007	.944		1.066	.899	
Prior Sex Offense Charge	0.804	.111		0.621	.638		0.892	.549				
Prior Other Violent Charge	1.054	.695		1.820	.161		0.845	.411		3.501	.092	
Prior Drug Charge	1.326	< .001	*	1.140	.484		1.058	.462		2.160	.024	*
Motor Vehicle Theft under 18	1.362	.048	*	1.289	.630		1.086	.625				
Demographic Controls												
Age	0.981	< .001	*	1.006	.569		0.957	< .001	*	0.944	.001	*
Body Mass Index	1.000	.966		1.002	.872		0.994	.243		1.005	.723	

Note: HR = Hazard ratio; * = p < .05; All models assessed for violations of proportional hazards using Schoenfeld residuals. When proportional hazards were violated for a variable, a time transformation was used to include an interaction with time. Only the instantaneous hazard parameter is reported when such violations were present and accounted for. Certain variables omitted from Black Females sub-model due to singularities.

Figure 7. Group Differences in Association between Criminal History and Predicted Survival Probabilities - New Non-Violent Charge
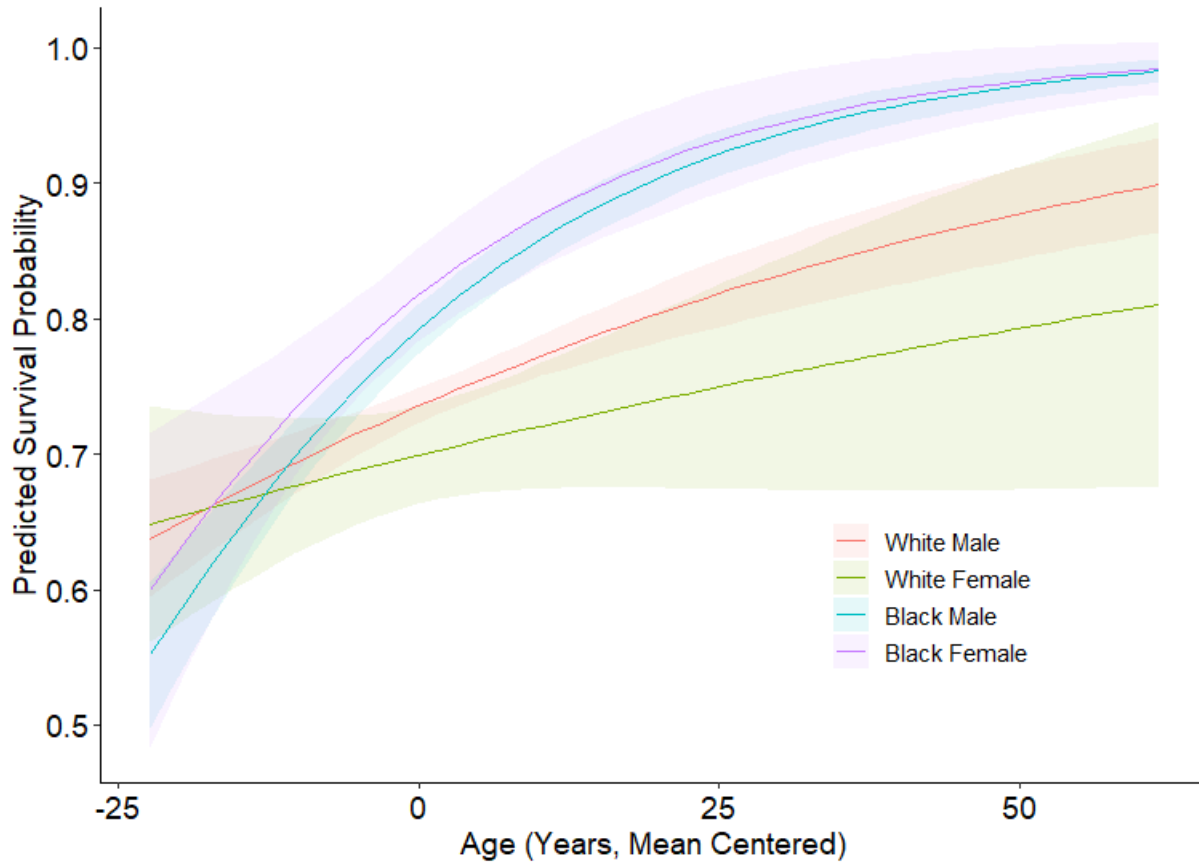
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