Race, class, and criminal adjudication: Is the US criminal justice system as biased as is often assumed? A meta-analytic review

Christopher J. Ferguson [*], Sven Smith

Stetson University, United States of America

A B S T R A C T

It is widely reported that the US criminal justice system is systematically biased in regard to criminal adjudication based on race and class. Specifically, there is concern that Black and Latino defendants as well as poorer defendants receive harsher sentences than Whites or Asians or wealthier defendants. We tested this in a meta-analytic review of 51 studies including 120 effect sizes. Several databases in psychology, criminal justice and medicine were searched for relevant articles. Overall results suggested that neither class nor race biases for criminal adjudications for either violent or property crimes could be reliably detected. For all crimes, effect sizes (in terms of r) for Black vs White comparisons were .054, for Latinos vs Whites, 0.057 and for Asians vs Whites −0.028. There was significant heterogeneity between studies, particularly for Asian vs White comparisons. Effect sizes were smaller than our evidentiary threshold, indicating they are indistinguishable from statistical noise. For drug crimes, evidentiary standards were met, although effect sizes were very small. Better quality studies were less likely to produce results supportive of disparities. Studies with citation bias produced higher effect sizes than did studies without citation bias suggesting that researcher expectancy effects may be driving some outcomes in this field, resulting in an overestimation of true effects. Taken together, these results do not support beliefs that the US criminal justice system is systemically biased at current. Negativity bias and the overinterpretation of statistically significant "noise" from large sample studies appear to have allowed the perception or bias to be maintained among scholars, despite a weak evidentiary base. Suggestions for improvement in this field are offered. Narratives of "systemic racism" as relates to the criminal justice system do not appear to be a constructive framework from which to understand this nuanced issue.

1. Introduction

The degree to which race and class related to disparities in criminal sentencing has long piqued the interest of criminologists (e.g., Guevara et al., 2018; Lehmann, 2020; Lowery & Smith, 2020; Mitchell, 2005). Given a long history of slavery and racism in the United States it is reasonable to worry about disparities continuing to the present day. Scholarly and public perceptions very often appear to suggest that significant, systemic, disparities continue to exist in the criminal justice system (Alexander, 2010). However, empirical studies often deliver mixed results. The current article examines the disparities in criminal justice adjudication in recent years (studies published from 2005 to 2022). First, we review the empirical evidence related to disparities in violent, property, and drug crime. This helps us understand, narratively, the shape of the research field as it has progressed over the previous 17 years. Examining prior literature allows us to understand contradictory

themes in the research and determine how great the disparity in the empirical support for these contradictory studies. In other words, are these themes supported by contradictory findings or are they representative of contradictory viewpoints? Then we turn to theories of why disparities may or may not be expected. Third, we examine methodological issues that may impact effect sizes in this field. We end by conducting a new meta-analysis to update the evidence for this field.

Upfront, we note two definitional issues. First, in the context of disparities, where we reference adjudication, we use the term disparity to refer specifically to potentially prejudicial differences in outcome (e.g., members of different ethnicities receiving different sentences, despite committing similar crimes and having similar criminal backgrounds, quality lawyers, etc.). Regarding adjudication, similar to Mitchell (2005), we refer to a group of related decisions within the criminal justice system including, imprisonment decisions, sentence length, diversions and downward departures (i.e., more lenient decisions than

typical) and upward departures (i.e., harsher decisions than typical).

The United States has an unusually high prison population. As of 2021, over two million Americans are incarcerated, and the US has the world's highest per capita incarceration at 629 per 100,000 citizens. Certain ethnic groups, particular Black Americans, tend to be over-represented among incarcerated populations (Beckman & Rodriguez, 2021). This has led to debate both in the general population, as well as among scholars, regarding whether this can be better explained by actual differences in contact with police and perpetration of crimes between ethnic groups or bias in the criminal justice system itself.

1.1. Previous empirical research

1.1.1. Violent and property crime

With regard to violent crime, research on the impact of race and ethnicity on sentencing decisions is abundant. It may be expected that the criminal justice system might involve racial biases, given that historical stereotypes of Black Americans as associated with violent crime (Hurwitz & Peffley, 1997). Some data (as well as news media narratives) support the idea that violent crime offenders belonging to a racial or ethnic group other than White consistently receive harsher sentences for their violent crimes than others (e.g., Brennan & Spohn, 2008; Rodriguez, 2013). However, the research suggests that disparities are felt more severely when dealing with different degrees of violent crime. For instance, Black and Latino defendants are punished more harshly for manslaughter or carjacking, and White defendants are punished more harshly for sex-related offenses (Lehmann, 2020). In an examination of family violence cases, Freiburger and Romain (2018) found inconsistent outcomes. Out of fourteen hypotheses tests, three were reported as significant (a fourth had a high effect size but was not marked as statistically significant). This illustrates how it can be difficult to understand how consistent outcomes should be to offer support for discrimination hypotheses.

Other evidence suggests that effects of race on adjudication may be less clear than often assumed. For instance, Bloch et al. (2014) found that, with other factors controlled, race had little clear impact on criminal adjudication. Likewise, Tartaro and Sedelmaier (2009) found little evidence for an impact of race on criminal adjudication. Some studies, converse to expectations, find that Black defendants receive more lenient sentences than Whites (e.g., Wooldredge, 2007). There are also complexities in studies where more than one ethnic comparison is found and evidence is mixed (finding evidence for a Latino/White disparity but not a Black/White disparity, for example). This begs the question whether mixed results studies be considered as evidentiary in support of theories of bias? Lastly, although there are fewer studies of Asian defendants are less than those looking at other ethnicities, most of these studies suggest that criminal adjudication for Asian defendants is more positive than for Whites (e.g., Kutateladze, Andiloro, Johnson, & Spohn, 2014) further complicating narratives that assume a systemically racist system favoring White defendants.

Class issues may also impact criminal adjudication though studies of class issues are fewer in number than for race. Varela-Manso (2021) looked at the impact of socioeconomic status on sentencing for murder in the first- and second-degree in Manhattan, New York. The sample in this study consisted of 107 adults arrested and sentenced for murder in the first- and second-degree. Varela-Manso found an association between socioeconomic status and the severity of sentencing for violent crime. Varela-Manso concluded that those who identified as low-income received harsher sentencing for second-degree murder than those who identified as bringing in average or above average income. Other studies, however, have been less clear in demonstrating class effects (e. g., Wooldredge, 2007).

Similar inconsistencies may be noted in relation to property crimes, although studies that focus explicitly on property crimes, as opposed to lumping felonies together, tend to be fewer. In one example, Caravelis et al. (2011) in a large sample of over 26,000 adults sentenced to prison in Florida, found small disparities for both Black and Latino defendants compared to Whites. However, the effect sizes were very small with effect sizes in terms of r below 0.10. Such effect sizes may be due to methodological noise, again demonstrating how difficult they can be to interpret in studies reliant on massive power to produce statistically significant effects. Outcomes for Schlesinger (2005) were inconsistent for property crimes; associations between race and outcome were found for two out of five outcomes considered related to incarceration and bail.

1.1.2. Drug crime

We separate drug crimes out specifically given several concerns. First, the US has particularly stern laws regarding drug use and sale, often resulting in long sentences. Second, laws may sometimes penalize certain types of drug use more common in minority communities as compared to the White majority community (sentencing for crack versus powdered cocaine; for instance, with the use of crack both more criminalized and more common in the Black community although crack use ultimately was predicted better by socioeconomic issues rather than race per se, see Palamar et al., 2015). Thus, even if there is no intended discrimination, disparate impacts on differing communities may still exist.

Griggs (2021) examined the impact race on sentencing decisions for drug crime. Using data from the United States Sentencing Commission in 2016, Griggs found that there was a statistically significant disparity between White and Black offenders, but only for cocaine charges, indicating that disparities were specific only to cocaine. In cases regarding cocaine, Black offenders received longer prison terms than their White counterparts. As a whole, Griggs concludes that while disparities between race, ethnicity and sentencing length and severity exist, they are consistently small in magnitude.

Spohn and Sample (2013) examined the influence of race and ethnicity on sentences regarding drug crimes. Data from three U.S. District Courts were taken and analyzed to conclude that race did have an effect on convictions dealing with cocaine and crack cocaine. These findings support previous observations that disparities were statistically significant for Black men sentenced to prison for crack cocaine and cocaine charges but were still statistically small in effect size. By contrast, Jackson (2022) found that race had little impact on sentencing for drug crimes, but lower socioeconomic status did.

Ward et al. (2016) looked at the interaction between race/ethnicity and bias in the judicial and prosecutorial system with regard to drug-related cases. This study concludes that minority offenders receive harsher sentences and that such comes from judicial decision-making. It continues that there were small disparities found between racial groups on behalf of prosecutorial bias, but the biggest influence on sentence severity was the degree of crime committed and the type of drug that led to incarceration. This study's outcome is congruent with previous results that show the greatest disparity takes place for Black men convicted of crack cocaine or cocaine related crimes. In this study, statistical significance was also found for Black men convicted of methamphetamine and heroin related offenses. However, Ward et al. concludes that the effect size of these discrepancies is relatively small.

1.1.3. Empirical evidence, concluding thoughts

This narrative review suggests that the evidence for sentencing disparities is mixed across studies. There are relatively fewer studies of Asian defendants, though these suggest a small protective effect relative to Whites or other ethnicities. Clearer evidence for disparities may exist for drug crimes, though effect sizes appear to be rather small overall. We also note that control variables in many studies are comparatively lacking. For instance, most studies do control for age and prior criminal record. Many studies that examine race issues, however, don't control for class. Other factors such as employment status, class of defendant, attorney type (private versus public) or the presence of a cooperative victim are seldom controlled in the literature. This creates the possibility that the small effect sizes seen in some studies may, nonetheless, be

upwardly biased.

Such difficulties in interpreting effect sizes are demonstrated in the following example. Crow (2008) examines the influence of Black and Latino (versus White) ethnicity on sentencing outcomes for violent, drug and property crimes. With sample sizes ranging between $n = 140,404$ and $n = 220,083$ (not atypical for studies in this field), Crow's analysis has enormous power and, not surprisingly, finds statistically significant effects across outcomes. Reported effect sizes in odds ratio are largest for drug crimes (2.26 and 1.97 for Black and Latino defendants respectively), but weaker for violent (1.41 and 1.24) and property crimes (1.46 and 1.27). Particularly for these latter two categories, it is not evident that these effects are meaningful, corresponding to effect size r[1] between 0.104 and 0.059. Taken at face value this would indicate that race explains somewhere between 0.5 % to 1 % of the variance in sentencing. However, more critically, new data suggests that effect sizes in this range are generally explained by methodological noise, not true effects (Ferguson & Heene, 2021). This means that effect sizes in this range may falsely be interpreted as hypothesis supportive when they are not when study authors naively focus on interpreting *p*-values rather than a more sophisticated and critical examination of whether effect sizes exceed likely noise effects.

1.2. Theories of criminal adjudication disparities

1.2.1. Theories explaining why disparities may exist

Theories of why certain groups of minorities may receive harsher criminal adjudication fall into two main groups: those developed specifically within criminology and those developed from outside criminological research which may have more popular influence with the general public. The latter may be more accessible to the general public, receiving more news media attention and involved less complexity than scholarly theories.

Criminological theories of racial disparities vary a bit, but generally fall within the realm of what might be called racial or minority threat (which can also be generalized to class issues). For discussions related to this see, for example, Caravelis et al., 2011 or Warren et al., 2020. Related to moral panic theory, certain racial or ethnic groups may become associated in the public mind with various crimes, such as the crack cocaine epidemic, the opioid epidemic (perhaps more for class), or gang violence. It is recognized that sometimes actual ethnic disparities in the commission of crimes actually do exist, fueling the stereotypes (Beck, 2021). Members of the majority group may come to view members of minority groups as a threat to the rule of law or may be quicker to blame criminal actions on personal responsibility for minority defendants and on external circumstance for White defendants. Individuals generally show more empathy toward in-group individuals than out-group. Thus, even if racial bias is distributed equally across individuals of different ethnicities, a disparate effect may fall upon minority rather than majority defendants simply due to representation.

In the public consciousness, attitudes and beliefs about race disparities in the criminal justice system may be shaped by *Critical Race Theory* (CRT; Delgado & Stefancic, 2017). Briefly, CRT is a controversial[2] theory emanating from law schools that suggests, despite the de jure impact of the civil rights movement in the 1960s ending racial segregation, the US legal system remains de facto racist and White supremacist. This relates to the perception that there is a systemic racism in the US criminal justice system, though we find this latter construct often ill-defined. However, under such approaches we would reasonably expect to see

negative disparities for criminal adjudication for all ethnic groups (including Asians, outcomes for whom are often overlooked in debates on White favoritism or non-White ill-favored prejudice in the criminal justice system) as compared to the White majority.

Our concern with extant theories is that they clearly begin with the *presumption* of disparities but provide few guidelines for the falsification of the theories. Granted, this is a widespread problem in social science, but that makes it no less of a problem here. Put simply: it is helpful to know what data we'd expect to see if the theory is *wrong* and what the threshold for rejecting the theory might be. Without such clear guidelines, theories may persist endlessly despite having weak evidence. That may be particularly true for theories with significant moral and emotional valence, which certainly is the case for questions of race and class disparities in criminal adjudication.

1.2.2. Theories explaining why disparities may not exist

By contrast, there are no programmatic theories of why racial disparities may not exist. Granted, null theories tend not to be fully elucidated, though we find the wording of theoretical perspectives in this area to potentially beg the question of what results are desirable to find. This may put the research field in a confirmatory approach rather than a falsification approach which would be truer to the traditionally scientific approach.

Nonetheless, we find there are theoretical reasons to expect that racial and class disparities may be fewer than often presumed. The civil rights movement was successful in creating equality before the law. Evidence from psychological studies demonstrates major reductions in both explicit and implicit[3] racial prejudice (Charlesworth & Banaji, 2019) through recent years. As the authors note "Over the past decade, explicit race attitudes have moved toward neutrality by approximately 37%". This is consistent with other data, such as polling indicating widespread approval of interracial marriage (Gallup, 2021). These trends are likely to express themselves in juries, among prosecutors and judges, as they appear to be widespread among different social attitudes. Though we believe both pessimistic and optimistic theories are worth testing, we find there are considerable grounds for optimism regarding the neutrality of the criminal justice system.

Perceptions of prejudicial disparities within the criminal justice system may be driven by two things. First ethnic/racial differences in contact with the criminal justice system may be misinterpreted as unfairness. Second, this observation of difference in contact may be misinterpreted as unfairness given understandable shame over a past history of slavery, Jim Crow and other ethnic prejudice in the United States. It is well understood that different ethnicities commit crimes at differing rates (Beck, 2021), bringing them into contact at different rates with the criminal justice system. Although some might express the concern that overpolicing might explain such discrepancies, similar ethnic differences are seen for victims of crime as well, with most violent crime being intra-racial (FBI, 2018). Thus, it is reasonable to suggest that any differences in sentencing between ethnicities might be explained by more numerous and repeated contacts with the criminal justice system among some ethnicities as compared to others.

For instance, men are vastly overrepresented in the criminal justice system and may in some cases receive harsher sentences than women, though this is rarely interpreted as evidence of a matriarchal anti-male system, and more often as the natural sequelae of greater male contact with the criminal justice system. Similar, it is worth noting that evidence suggests that racist attitudes in the United States are becoming increasingly rare, arguably reducing their explanatory power for any differences observed in criminal sentencing (Charlesworth & Banaji, 2019).

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[1] Note: Unless mentioned otherwise, most effect sizes in this article are presented in terms of effect size *r*.

[2] So much so that some conservative US states have sought to ban its use in education. Here, we neither condone nor condemn the CRT approach to this issue, but express concern about government censorship of ideas, however wrong they may be. Such matters are best debated openly.

[3] The concept of implicit biases is very controversial in the literature, but beyond the scope of this analysis. See Jussim et al. (2020) for critical evaluation of this construct.

The countervailing narrative is that US culture underwent transformative historical processes during the civil rights movement, resulting in a situation of legal equality and taboos regarding racism as well as programs such as affirmative action (e.g., Sowell, 2005). This perspective is supported by the observation, as noted above (e.g., Charlesworth & Banaji, 2019), that most indices of racism, explicit or implicit, show historically remarkable declining trends. It has been argued that this has created a *paradox of racism* wherein perceptions of racism, particularly on the political left, have risen even as actual empirical evidence suggests that racism has become increasingly rare (Kaufman, 2021). From this perspective, differences in outcome reflect real differences between cultures, with claims to prejudice selective or status-signaling for academic elites.

1.3. Methodological considerations

It is widely recognized that study best practices can influence effect sizes. As we noted earlier, studies in this realm do vary by quality. For instance, though most studies do control for defendant age and prior convictions, most do not control for class which some scholars argue is a critical control variable (e.g., Reilly, 2020). Controlling for other variables such as employment record, type of lawyer or whether the prosecution benefited from a cooperative victim are more rarely controlled. The presence or absence of important control variables can have significant impact on effect sizes.

There is also the issue of researcher expectancy effects. In other words, researchers may sometimes analyze and reanalyze their results to get results that support a particular perspective. This need not involve intentional deception but may simply be human nature. This issue has been particularly critical for related fields such as psychology wherein a crisis of irreplicable studies has reduced confidence in many previous held beliefs. Though criminology has not experienced a similar crisis, issues of replicability and researcher bias are relevant to criminology as well (Losel, 2018). For this field, given the heightened emotional and moral volatility of the questions being asked, we believe the potential for bias is considerable. This is particularly true when most studies are not preregistered (that is, the hypotheses, methods and data analysis plan publicly published prior to data collection). We feel that preregistration caries very little cost but potential benefit; it may reduce the potential for researcher to inject certain types of bias into their studies. Unfortunately, we found no relevant research studies that are preregistered. This means that this field may be particularly susceptible to researcher expectancy effects and potential data manipulation to support a priori hypotheses (Szucs, 2016).

One way to assess for potential researcher expectancy effects is through analysis of *citation bias*. As we indicated in our literature review, evidence for race and class disparities is mixed. Citation bias occurs when scholars only report evidence supporting their hypotheses and fail to cite evidence which would contradict them. Citation bias has been found to be associated with spuriously elevated effect sizes in other scientific fields (e.g., Drummond et al., 2020), so it is worth examining here as well.

Another concern is a concept called the smallest effect size of interest (SESI). We observe that many studies in this realm employ fairly massive sample sizes, often hundreds of thousands of defendants from public databases. This is excellent in terms of power, however such studies do have one potential drawback. Specifically, below a certain effect size threshold, the methodological specificity of social science is not precise enough to distinguish true effects from noise (or what might be called the "crud effect", Orben & Lakens, 2020). This can result in scholars making attributions of hypotheses support that are not warranted from weak data that are, in fact, inconclusive at best. Any threshold for what is or is not good evidence, inevitably as with all crude thresholds, arbitrary. However, Ferguson and Heene (2021) demonstrated that effect sizes below $r = 0.10$ are highly prone to false positives. In large sample studies many noise effects become statistically significant and

this can result in false confidence in scholars' theories. Thus, a SESI baseline of $r = 0.10$ (a figure interpreted by the majority of researchers in all social science disciplines known to these authors to be "weak") appears to be reasonable.

1.4. The current study

One prior meta-analysis has examined the issue of race disparities in criminal adjudication through 2005 (Mitchell, 2005). Mitchell found evidence for small disparities in criminal adjudication favoring White defendants over Black or Latino participants, though there were between-study inconsistencies. Effect sizes were generally very small, suggesting that the discrimination was not the primary cause of the minority prison experience. Given evidence for continued reductions in societal racism since then (Charlesworth & Banaji, 2019) it is worth examining the evidence from more recent studies.

Thus, the current article examines studies from 2005 to 2022, testing several main hypotheses. Namely, with other factors controlled:

H1. Black, Latino and Asian defendants will experience negative disparities in criminal justice adjudication.

H2. Individuals of lower socioeconomic status (class) will experience negative disparities in criminal justice adjudication.

We believe that these general hypotheses allow us to test for evidence in support not just of disparities in criminal justice adjudication, but also whether narratives of "systemic racism" or "White supremacy" in the criminal justice system are a constructive framework from which to discuss these issues. If there is systemic racism, we would expect to see large and consistent disparities across all crimes. Further, we would expect to see disparities in the same direction, including negative disparities for Black, Latino and Asian American defendants.

2. Method

2.1. Pre-registration and open data

We have preregistered the methodology of this meta-analysis prior to data collection and this is available here: https://osf.io/bu945/.

Note also that a list of studies is available at: https://osf.io/k9e7n. All included studies are also marked with an asterisk in the references.

A copy of all data is available at https://osf.io/j2np7.

A forest plot of all studies is available at: https://osf.io/jca63

A table of all studies and effect sizes is presented in Appendix A.

2.2. Inclusion criteria

As per our preregistration, studies were included so long as they provided a comparison of individual defendants' race or class and the impact of these on an outcome related to criminal adjudication (sentencing, diversion, incarceration). Studies included were published between 2005 to the summer of 2022 when the search was conducted (so as not to overlap with Mitchell, 2005). Only studies using actual offender samples were included, not analog experimental studies of hypothetical judgments using general population or student samples. Although it was not specified in the preregistration, among the studies we found were three where the unit of analysis was county or other geographical unit, not individual offenders. Upon consultation with some of the study authors (e.g., Durante, 2020), it was decided to exclude these studies due to the difference in level of analysis. This decision was made before any results were run. To be included, the studies also must have included enough information to calculate an effect size r/β. In the case that sufficient data were not available, study authors were contacted for more data. The authors of seven studies did not reply to this request and these studies were not included. An eighth study author was sadly reported as a homicide victim in news reports,

thus further data were obviously unavailable. Although not specifically preregistered, articles had to be in English as a practical matter. Given the topic of interest, only studies of the US criminal justice system were included.

2.3. Selection of studies

We undertook a search on Criminal Justice Journals, PsycINFO and Medline using the terms "sentencing" AND "race OR ethnicity OR minority OR class OR 'socioeconomic status'" AND "Criminal Justice". These searches were made in the SUBJECT search field aside from "criminal justice" which was left as all text. We also searched the references of the Baumer (2010) and Franklin (2018) reviews of race and sentencing. This search yielded 106 results. Removing articles with inadequate data or, as noted above, county level rather than individual level assessment, resulted in the inclusion of 51 articles which included a total of 120 relevant comparison effect sizes (e.g., Black v White; White v Latino). Three of these were unpublished dissertations. A PRISMA diagram is provided as Appendix A.

2.4. Analysis plan

As per our preregistration the main effect size was standardized regression coefficients (betas) which were calculated from the effect size employing the greatest degree of theoretically relevant controls in each study. Main, theoretically relevant control variables are discussed below as part of our best practices analysis. Two authors extracted effect sizes from each article. We calculated kappa interrater reliability for this to be $\alpha = 0.876$. Where there were disputes regarding effect sizes, these were addressed via discussion and agreement.

Initial results were calculated using Comprehensive Meta-Analysis (CMA). CMA was used to calculate random effects weighted mean effect sizes and conduct moderator analyses. Standardized regression coefficients were transformed to Fisher's z, weighted, averaged and transformed back to a pooled β (Furuya-Kanamori & Doi, 2016). Random effects models, while less powerful, allow for generalization to a broader population of studies than do fixed effects models. Thus, only random effects models are presented here. Hunter and Schmidt (2004) also argue that random effects models are appropriate when population parameters may vary across studies, as is likely here. Publication bias was assessed with tools including basic funnel plot analysis, Trim and Fill (Fernández-Castilla et al., 2021), PET/PEESE (Bartoš et al., 2022), and *p*-curve (Simonsohn et al., 2014). *P*-curve analysis was preregistered to only be used if more than 20 % of *p*-values were marginal, (that is, between 0.01 and 0.05). Our purpose for potentially incorporating a *p*-curve analysis was to correct for an overabundance of marginal *p*-values which, if one existed, may indicate *p*-hacking or other QRPs. As each publication bias approach works differently under different circumstances, utilizing several can help identify different contexts in which publication bias can occur. However, we assumed that we should normally expect a number of marginal *p*-values by chance and thus did not intend to run a *p*-curve analysis if there did not appear to be an overabundance of marginal *p*-values. We recognize this is not the only reason for undertaking a *p*-curve analysis, but it was our intent in using it, hence our preregistration.

Given the high power of meta-analysis, almost all meta-analyses return "statistically significant" effects (Ferguson & Brannick, 2012). Consistent with recommendations of Drummond et al. (2020) and Ferguson and Heene (2021), and as per our preregistration, we considered an effect size of $\beta = 0.10$ the minimum for practical significance (or SESI as discussed in our literature review) in order to avoid false positives due to noise effects (see those papers for full discussion of the use of this cut-off value).

2.5. Best practices analysis

We coded studies for employing current best practices (e.g., preregistration) to determine whether using such practices affected the effect sizes reported. Many, though not all, of these involved the employment of theoretically relevant control variables. Studies were given a point each for the inclusion of a number of different best practices (see below), resulting in a numeric score that ranged from 0 to 7. This score was used as a moderator variable to determine the effect of employing best practices on effect size. Studies were given credit (1 point each) for the following best practices:

1. If the main comparison was for race, controlled for class. If the main comparison was for class, controlled for race.
2. Controlled for age and prior criminal record (1 point each).
3. Controlled for defendant's employment history, whether their attorney was public or private, and whether the prosecution benefited from a cooperative victim (1 point each).
4. Preregistration of analysis plan.

This approach to coding for best practices is similar to that used in other fields of study (e.g., Drummond et al., 2020) and which has been shown efficacious in demonstrating how study best practices can influence effect sizes.

2.6. Citation bias

Papers were assessed for citation bias. To determine if a paper suffered from citation bias, we examined the literature review. If the literature review included no citations to papers with conclusions that conflicted with the authors' hypotheses, they were coded as having citation bias. Papers that acknowledged at least one research study or paper conflicting with the authors' hypotheses, were coded as not having citation bias.

2.7. Moderator analyses

The following pre-registered variables were included in moderator analyses to determine whether they influenced reported effect sizes: year of the study, best practices, attorney type, type of crime (felony, misdemeanor, violent v property v drug v juvenile[4]) and citation bias. For continuous moderator analyses, meta-regression was used. For dichotomous and categorical moderator variables mixed-effects models for categorical differences were used.

3. Results

We wish to note that in our preregistration, we had intended not to report results based on analyses of less than 10 studies. However, our literature search included fewer studies than we had expected, thus we relaxed this to a minimum of 3 studies. However, results based on so few studies should be considered with caution.

Table 1 presents our main results. Results for studies inclusive of all crime types or those that considered violent crimes specifically did not reach evidentiary standards to support the hypothesis that race, or class are predictive of criminal adjudication. Once again, hypotheses were not supported for property crimes or juvenile crimes. For drug crimes, however, small disparities were found for both Black and Latino defendants versus White defendants. The effect sizes were roughly the same for black individuals ($\beta = 0.127$) as for Latinos ($\beta = 0.134$). Results for Black v White comparisons were also less reliable. As indicated by

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[4] Note that juvenile crimes were not initially included in our preregistration but decided to include them as a separate category here. This did not affect study outcomes.

Table 1
Effect sizes for ethnic disparities by crime type.

Grouping variable	k	Effect size	95 % CI	tau	Evidence?
All crimes					
Black v White	31	0.054	0.037, 0.071	0.046	No
Latino v White	24	0.057	0.033, .0.082	0.059	No
Asian v White	5	−0.028	−0.163, 0.108	0.155	No
Class	4	0.020	0.013, 0.027	0.006	No
Violent crime					
Black v White	5	0.062	0.029, 0.095	0.036	No
Latino v White	4	0.045	−0.006, 0.095	0.051	No
Property crime*					
Black v White	3	0.091	0.071, 0.110	0.016	No
Latino v White	3	0.068	0.051, 0.086	0.013	No
Drug crime					
Black v White	9	0.127	0.027, 0.223	0.149	Yes
Latino v White	7	0.134	0.104, 0.163	0.033	Yes
Juvenile Crime					
Black v White	9	0.081	−053, 0.108	0.038	No
Latino v White	7	0.098	0.006, 0.189	0.121	No
Citation Bias					
Yes	39	0.098	0.073, 0.112	0.075	No
No	73	0.054	0.038, 0.071	0.069	No

Note: k = number of studies, tau = estimated standard deviation of effects across studies, Evidence = was evidentiary SESI standard met for hypothesis support.

the high tau value, a measure of standard deviation of effect sizes around the mean, heterogeneity was high across studies. Thus, this effect should be interpreted with caution. It is worth noting too, that although these effect sizes met our evidentiary standard, they are still quite small, suggesting that race/ethnicity is associated with between 1.6 and 1.8 % of the variance in criminal adjudication but for drug crimes only. There was no evidence of a class effect, and Asians actually received more favorable treatment during criminal adjudication than Whites, albeit not at a level that met our evidentiary standard.

3.1. Moderator analyses

Using mixed effects analysis, citation bias proved to be a moderating variable (p = .004), with studies experiencing citation bias reporting higher effect sizes (β = 0.098) than those without (β = 0.055). Publication status did not prove to be a moderator (p = .603). Meta-regression revealed that best practices were associated with reduced effect sizes (Q = 2861.19, p < .001). Study year likewise was a significant moderator (Q = 3874.29, p < .001) with more recent studies demonstrating lower effect sizes. These values all reflect group comparison differences in effect size. However, these results should be taken with the observation that all effect sizes were generally very small, arguably of trivial value.

There were only ten studies with explicit data on attorney status (e. g., private attorney versus public defender). A meta-analysis of these studies suggested that attorney status did meet our evidentiary standard (β = 0.101) suggesting outcomes were slightly worse for defendants using public defenders as opposed to private attorneys.

3.2. Publication bias

Analysis of all effect sizes generally did not suggest publication bias. Given that the p - value threshold was not met for p curve analysis, these analyses were not run. Generally, this indicated that there was not a cluster of results around the p = .05 threshold, nor that trim and fill or PET/PEESE suggested corrections to the effect size due to potentially missing, unpublished studies. However, it is worth noting that in large samples with small but "statistically significant" effect sizes, publication bias can be hard to detect (Ferguson & Brannick, 2012).

3.3. Exploratory analyses

We also conducted one set of follow-up analyses which were not

preregistered. Namely we examined the difference in effect size between several different adjudication outcomes. We used a fairly similar set of outcomes as Mitchell (2005), including imprisonment decisions, sentencing length and discretionary punitiveness (departures, etc.) Two studies examined the death penalty and being too few the reliably compare, were dropped from this analysis. These outcomes are presented in Table 2. Mixed effects models suggested a significant difference in outcomes (Q = 3496.29, p < .001) with highest effects (β = 0.11) for departures and lowest (β = 0.03) for sentence length. With drug crimes removed from the analysis, differences remained, but all outcomes slipped below our threshold for evidentiary value (e.g., departures effect size became β = 0.08).

To examine whether the current observed effect size indicated a departure from prior literature, we conducted an equivalence test with our data to that of Mitchell (2005).[5] For all ethnicities compared to Whites, Mitchell observed a mean effect size of OR = 1.39 which was converted to an effect size r.[6] Given that this effect size was produced mainly for samples with Black and Latino defendants, we included only effect sizes for these ethnicities in our own analysis. We conducted an independent samples t-test on our observed study effect sizes against the criterion set by Mitchell (2005). Results indicated that the effect sizes from our study were not significantly different from that of Mitchell (2005), t(99) = −1.05, p = .296). This suggests that our results are largely in line with prior analyses.

4. Discussion

The issue of racial and class justice as it relates to criminal adjudication is an important one. The social contract depends on faith in the criminal justice system as a neutral arbiter. Perceptions and experiences of bias in the criminal justice system reduce public confidence and lead to social discord. In recent years it has become common belief within the scholarly community as well as the general public that the criminal justice system is biased due to race and class issues. We sought to examine this with meta-analysis. Our results suggest that for most crimes, criminal adjudication in the US is not substantially biased on race or class lines. For drug crimes there appear to be very small race differences, though confidence in these effects is reduced somewhat due to the quality of many of the studies involved. Overall, perceptions of bias in US criminal adjudications do not seem proportionate to the available evidence. This does not mean there is not potential for bias in other areas such as police treatment, arrests, or other outcomes., as our analysis is limited to adjudications.

In our research, observable effect sizes were congruent with the previous meta-analysis on studies prior to 2005 (Mitchell, 2005), which supports the conclusion that these disparities might not be as abundant as scholars previously assumed. Effect sizes in studies from 2005 on are relatively minimal. These effect sizes are about β = 0.06, but evidence suggests that effect sizes below β = 0.10 are indistinguishable from statistical noise. This is due to lack of precision in social science research as well as researcher expectancy effects. An earlier meta-analysis

Table 2
Effect sizes for different adjudication outcomes.

Grouping variable	k	Effect size	95 % CI	tau
Departure	15	0.114	0.070, 0.159	0.088
Imprisonment	74	0.071	0.054, .0.088	0.072
Sentence Length	27	0.025	0.017, 0.033	0.018

Note: k = number of studies, tau = estimated standard deviation of effects across studies,

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[5] Dr. Mitchell informed us original data were no longer available which is understandable given the time length since publication.
[6] We used the effect size converter at escal.site to make this conversion.

(Travis, 1998) likewise concluded that race did not determine sentencing, though methodological differences in the conceptualization of race might be a factor. We express the concern that evidence for racial bias in the US criminal justice system has been consistently weak, and that scholarly narratives have too often ignored this in favor of the systemic racism narrative.

One of the issues that appears to have led to miscommunication in this realm is that most studies of race and class disparities are conducted on massive samples, often hundreds of thousands of defendants. In such studies "noise" effects often become statistically significant (Ferguson & Heene, 2021). Big sample studies can actually amplify many errors, increasing Type I error rates (Kaplan et al., 2014). Scholars may not have been cautious in carefully interpreting trivially small effect sizes. This is a common issue in social science, wherein "statistical significance" is often treated as a binary outcome with little concern for critical evaluation of effect sizes. This has been a known problem for decades (e.g., Carver, 1993), yet it persists in social science. To be fair, many studies did acknowledge that effects were small or inconsistent. Nonetheless, these words of caution do not appear to have adequately been translated to either policy makers, the general public, or scholars teaching students about criminal justice.

Our results are consistent with other data which suggests that overrepresentation among perpetrators of crime explains incarceration disparities to a greater degree than does racism in the criminal justice system (e.g., Harris et al., 2009). Policy, as such, may do better to understand the causes for disparities in the perpetration of crime. These are unlikely to relate to race per se, but rather community factors associated with poverty (Smith et al., 2022). We believe it likely that improvements in the criminal justice system may benefit from greater focus on class rather than race issues.

Our exploratory analyses did suggest some differences in outcome. Only departures, not imprisonment decisions nor sentence length crossed our evidentiary threshold and, at that, only just barely. It's possible too that departures and other discretionary issues may be more common for drug cases than other types of crime, creating some overlap in these outcomes. This possibility was partially confirmed in our analyses.

4.1. Drug crimes

Our findings for drug crimes were the one exception to our observations. Here, evidence did exceed our evidentiary standards. Nonetheless, effect sizes are still very weak, with race/ethnicity explaining only 1.3 to 2.2 % in the adjudication of drug crimes. Once again, it is both important to investigate these disparities while honestly communicating that these disparities are very small.

US penalties for drug crimes tend to be particularly severe. It may also be the case that drugs that are more commonly used by ethnic minorities (crack cocaine for instance) may be associated with harsher penalties. Thus, the issue may be less that disparities are due to any intentional racism or bias, but an unintended consequence of differential laws for different substances preferred by users of different ethnic groups. In general, we believe that a careful evaluation of draconian drug penalties would be of benefit.

4.2. Best practices/quality of studies issues

We note that methodological limitations of extant studies were significant, and likely still upwardly bias effect sizes. Most studies do control for age and prior criminal history which we regard as essential. Studies were less consistent in controlling for class if race was the main predictor variable or vice versa. Furthermore, other control variables such as attorney status (i.e., whether a public defender or private attorney was employed), employment history or presence of a cooperative victim were rarely employed. As such, more sophisticated regression models would likely be of benefit.

There are also few controls on researcher expectancy effects. This would be particularly important to consider for a research field with such obvious moral and political valence. More scholars should consider preregistration of their studies as well as making their data files openly available. This would aid in the transparency and replicability of this research field.

4.3. Citation bias issues

We note that studies with citation bias tended to produce higher effect sizes than those without. This suggests that researcher expectancy effects may have a deleterious effect on our understanding of this field and true population effects may, in fact, be smaller than what is being published in empirical studies. Efforts to use preregistration in future studies may reduce, though likely not eliminate, this effect.

4.4. Important qualifiers in the current data

Although the overall data in evidence for systemic disparities in sentencing are weaker than many may assume, the current evidence comes with several important qualifiers. First, the evidence base for class effects is very small and fairly crude. Most studies included this as a control variable for studies of race, and measures of class were often fairly rudimentary. As such, we do not believe that the evidence for potential class issues is very clear at this time. It may also be the issue that individuals of higher economic status either are not charged with crimes in the first place, or commit certain types of crimes (e.g., white collar crimes) that are less likely to see prosecution. Thus, we would like to see more and better designed studies, particularly with preregistration, that examine class in more comprehensive ways, while remaining alert to potential noise effects from large sample studies. This issue appears similar in this field as to studies of police violence wherein using proper controls can lead to better model specification (Fryer, 2016). For criminal adjudication, better measures of class, as well as other variables such as gang affiliation, lawyer quality, and such, would be worth considering in multivariate models.

Second, we observe that racial categories used in most studies are very broad (White, Black, Hispanic, etc.) and assume a homogeneity of experience within these groups that may mask differences within these groups. For instance, the experience of more recent Black immigrants from Africa or the Caribbean may not resemble those of African American descendants of slaves. Similarly, the experiences of poor, less educated Whites may differ from their highly educated counterparts. It may be helpful to examine more narrowly defined ethnic and cultural groups for specific differences.

It is also plausible that race effects may be geographically limited. For instance, on the issue of police shootings Hemenway et al. (2020) found the data to be nuanced, with White Americans more often than Black Americans shot by police in rural areas, but Black Americans shot more often by police in urban areas. It's possible that some kind of geographic specific disparities may exist that aggregate out across larger geographic areas.

With these issues in mind, there is room for scholars to bear down more specifically on this issue across smaller cultural groups and regions. Once again, preregistered designs are particularly welcome as are those alert to the potential for false positive noise effects originating from large samples.

4.5. Implications for theory

Generally speaking, evidence from this study does not support theoretical perspectives arising from racial resentment, Critical Race Theory or narratives regarding "systemic racism" as relates to criminal adjudication. Overall, the criminal justice system appears to be remarkably neutral, at least as relates to these issues, either when compared to the historical US criminal justice system, or criminal justice

systems throughout history in other cultures.

We do call upon theorists in this area to be more explicit about falsification guidelines for such theories. Must theories do not have clear lines for falsification, which we suspect leads scholars into confirmation mode wherein weak or contradictory evidence can be interpreted as hypothesis supportive. We also suspect that negativity bias is leading scholars to interpret inconclusive evidence as hypothesis supportive as relates to the "systemic racism" narrative. A more robust and rigorous framework for theory testing and support would likely increase clarity in these areas.

4.6. Recommendations for the Communication of Criminal Adjudication Issues

We believe that there remain excellent reasons to advocate for many criminal justice reforms. The US incarceration rate remains uniquely high, and support for community integration of former inmates is low. Nonetheless, miscommunication of extant evidence can also do harm. At present, we believe that the evidence on racial bias in criminal justice adjudication has been poorly communicated to the general public and policymakers. In many cases, it appears that data calling into question beliefs in structural racism in the criminal justice system are simply being ignored, both by scholars in the field and by policy makers. Specifically, it is likely that many people overestimate the racial bias of the criminal justice system.

We note that this may, in part, be due to biases within the field and throughout academia. For instance, in a meta-analysis of juvenile waivers Zane et al. (2016) find no statistically significant race effect but appear reluctant to acknowledge race may have less impact than is often assumed. It has been observed that social science is liberal/progressive leaning for decades (Redding, 2001) and to the extent that progressive worldviews on race have become status-signaling in academic communities and critical evaluation of such beliefs taboo, this may result in significant miscommunication of research data to the general public. Evidence suggests that sincerely held beliefs and attitudes influence decision making in the most august circumstances where objectivity is valued (Segal & Spaeth, 1993). Generally, academics have been reluctant to examine authoritarian influences on knowledge on the political left (Costello et al., 2022), but such influences may help explain gaps between rhetoric and knowledge on issues of race.

We suggest that scholars be more cautious when covering this field, whether talking to students, policy makers or the general public. We note the possibility that overstating the case for sentencing disparities may itself cause harm to minority communities through increasing racial discord, creating fear and mistrust, and reducing community cooperation with criminal justice authorities, which may lead to the experiencing of more crime. Certainly, the US criminal justice system has a history of systemic racism. However, current evidence suggests that the criminal justice system is a much more neutral arbiter than many assume, at least on race issues. We do note that this doesn't mean this will always be the case. Just as things have shifted for the better, they could always shift again and it's critical that the criminal justice system be continually monitored for potential biases.

However, communicating to the public or students that the criminal justice system is systemically racist or classist simply isn't supported by current evidence. Miscommunicating this issue may actually lead to social discord, declines in race relations and other foreseeable negative outcomes. As such, we suggest that scholars have an ethical obligation to be cautious in their discussions of this issue.

We further offer several specific practical suggestions for researchers namely:

1) Preregistering study hypotheses, methods and analysis plan prior to data collection may cut down on false positive results.
2) Results with an effect size below $\beta = 0.10$ (approximately OR = 1.44) should no longer be interpreted as hypothesis supportive even if

"statistically significant" (Ferguson & Heene, 2021). Results between $\beta = 0.10$ and $\beta = 0.20$ (approximately OR = 2.10) should be interpreted with caution as weak evidence. We observe this tendency to vastly miscommunicate weak effect sizes in related areas such as prosecutorial decisions (e.g., Wu, 2016)[7] and worry such miscommunication is doing more harm than good.
3) Studies with mixed results (significance for some outcomes but not others, significance for some ethnicities but not others) should no longer be selectively interpreted as hypothesis supportive.
4) Regression models need to consider and implement further controls, whether for class, lawyer type, prior criminal history, gang affiliation, urban density, or other factors, than is often the case presently.

4.7. Limitations

As with all studies, this one has limitations that are worth considering. First, our measure of citation bias is generous and binary. In reality, citation bias likely works according to degrees…the study that cites a single article varying from its narrative differs from one that comprehensively and fairly covers both sides of an academic debate. It would be interesting to see further evaluations of the citation bias concept explore how ordinal systems of citation bias might influence results.

Second, further research might seek to explore the explanatory power of certain control variables such as urban density. The current analysis, relying largely on published effect sizes, is unable to quantify the impact of specific control variables, but understanding which control variables are more valuable and those which are not may help future researchers in building better specified regression models.

Third our preregistered search strategy involved using subject searches. It is possible that this may have narrowed the field of found articles somewhat, and we may have thus missed some articles with related data. However, given the generally low effect sizes found in both the current pool of data, as well as prior meta-analyses from previous decades, it is unlikely that this issue would have greatly influenced observed effect sizes.

Fourth, our analyses included only the years since Mitchell (2005). This was done so as not to overlap with prior analyses. It is possible that changes in methodology, changes in researcher expectations, or real changes in the criminal justice system could all produce differences in effect sizes that would be obscured by overlapping datasets. As it turns out, exploratory analyses suggests that effect sizes were, in fact, fairly similar across these time points. However, conducting an analysis of more recent data allowed us to more clearly come to this conclusion. Thus, the issue appears to be not that disparities have disappeared, but the evidence to suggest they exist has been much poorer than often assumed for some time.

4.8. Concluding thoughts

Concerns about the potential for race and class bias in the criminal justice system persist. Our analysis suggests that, at least in recent decades, racial and class bias in criminal adjudication may not be as distinct as once believed. With regard to most crimes, the criminal justice system seems to be effectively neutral, albeit very small effects are seen for drug crimes. In addition, nothing in our results comment on other literature's strong themes explaining disproportionate arrest rates, as may relate to differences in contact with police. Overall, this is a cause for optimism even if we must remain vigilant for negative shifts in the future. Continuing portrayals of judicial sentencing within the US as discriminatory are misleading and most likely doing more harm than

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[7] In this case, conclusions regarding ethnic disparities were based on "statistically significant" but near-zero effect sizes and wildly inconsistent differences between studies.

good.

Declaration of competing interest

The authors report no conflicts of interest, financial or otherwise.

Data availability

All data are made openly available with link provided in manuscript

Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.avb.2023.101905.

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