In Pursuit of Innocence: A Study of Race and Ethnicity Differences in Time-to-Exoneration

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The purpose of this study is to examine the impact of race and ethnicity on time-to-exoneration through the lens of focal concerns theory. Focal concerns theory has been used to demonstrate that criminal justice actors are influenced by legal and extralegal factors in decision making and rely on stereotypes to assess blameworthiness, protection of the community, and in navigating practical constraints and consequences. Utilizing data obtained from the National Registry of Exonerations (N =507) survival analysis was performed. The findings indicate that Black exonerees experienced a longer time-to-exoneration than did White exonerees and that Hispanic exonerees experienced the shortest time-to-exoneration of all. The findings offer support for focal concerns theory in the demonstration that racial and ethnic differences are present in time-to-exoneration resulting in disparities which disadvantage minorities. Further support for focal concerns theory is found in that the legal components of a case are shown to be associated with racial and ethnic differences in time-to-exoneration.

I   Introduction

In recent decades, the phenomena of exonerations have become increasingly more visible thanks to the ability of DNA testing to prove innocence and professional exonerators, such as the Innocence Project, who are dedicated to representing the wrongfully convicted. An exoneration occurs when an individual who has been convicted of a crime is officially cleared based on new evidence of innocence in any form with no unexplained physical evidence of that individual's guilt remaining.[1] An exoneration may occur while a person is living or be awarded posthumously.

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[1] National Registry of Exonerations "Glossary" (2019), online:

A known and established process of law by which an individual can be convicted and found guilty of a crime exists. However, no process exists set by law that lays forth how a convicted individual may be proven innocent. An individual seeking an exoneration faces significant obstacles arising from procedural restrictions, as well as the reluctance of the justice system to admit error.[2] Consequently, the journey to exoneration may take years and even decades to complete and present significant obstacles.[3]

Analyses of the current data on exonerations suggests racial differences are present in exonerations.[4] Additionally, available data also shows there are racial and ethnic differences in time-to-exoneration.[5] However, an examination of the empirical literature regarding time-to-exoneration reveals there is a dearth of scholarly attention to this particular topic. The few studies that do address time-to-exoneration do not focus on race or ethnicity as the central issue but include it as a control variable.[6] Additionally, none of the empirical literature regarding race and ethnicity and time-to-exoneration provide a theoretical premise.

<https://www.law.umich.edu/special/exoneration/Pages/glossary.aspx> [*NRE Glossary*]; Brandon Garrett, "Actual Innocence and Wrongful Convictions" (2017) Academy for Justice, A Report on Scholarship and Criminal Justice Reform (Erik Luna ed., 2017 Forthcoming); Samuel R Gross & Michael Shaffer, "Exonerations in the United States, 1989–2012" (2012) SSRN Journal, online: <http://www.ssrn.com/abstract=2092195>.

[2] Jon B Gould, & Richard A Leo, "The Path to Exoneration" (2015) Albany Law Review, 2016 Forthcoming, American University School of Public Affairs Research Paper No 2016-02 , online: <https://papers.ssrn.com/abstract=2694709> [Gould & Leo]; Jeffrey S Gutman, "An Empirical Reexamination of State Statutory Compensation for the Wrongly Convicted" (2017) 82 Mo L Rev 369, online: <https://papers.ssrn.com/abstract=3422444>.

[3] Gould & Leo*, ibid*.

[4] Marvin Free & Mitch Ruesink, "Flawed justice: A study of wrongly convicted African American women" (2018) 16:4 Journal of Ethnicity in Criminal Justice 333–347, online: <https://www.tandfonline.com/doi/full/10.1080/15377938.2015.1015199>; Samuel R Gross, Maurice Possley & Klara Stephens, Race and Wrongful Convictions in the United States, by Samuel R Gross, Maurice Possley & Klara Stephens (The National Registry of Exonerations, Newkirk Center for Science and Society, 2017), online: <http://www.law.umich.edu/special/exoneration/Documents/Race_and_Wrongful_Convictions.pdf> [*Gross et al 2017*]; National Registry of Exonerations, "Milestone: Exonerated defendants spent 20,000 years in prison" (2018), online: <https://www.law.umich.edu/special/exoneration/Documents/NRE.20000.Years.Report.pdf> [*NRE 2018*].

[5] *NRE 2018 Ibid*.

[6] Gould & Leo*, supra* note 2; Maeve Olney & Scott Bonn, "An Exploratory Study of the Legal and Non-Legal Factors Associated With Exoneration for Wrongful Conviction: The Power of DNA Evidence" (2015) 26:4 Criminal Justice Policy Review 400–420, online: <http://journals.sagepub.com/doi/10.1177/0887403414521461> [*Olney*]; Patrick Rafail & Margaret Mahoney "A Long Road to Freedom: The Exoneration Pipeline in the United States, 1989–2015" (2019) 60:4 TSQ 537-558, online: <https://doi-org/10.1080/00380253.2018.1547175> [*Rafail & Mahoney*].

A theoretical framework is important to provide context for the understanding of results.[7] Theories provide organization for data and deepen understanding of empirical study.[8] Little is known about the decision-making process regarding exonerations. Therefore, a theoretical premise is necessary.

This study examines racial and ethnic differences in time-to-exoneration through the lens of Steffensmeier's (1980) Focal Concerns Theory (FCT). FCT posits that judges and other decision makers are driven by concerns with blameworthiness, protection of the community, and the practical constraints and consequences of their decision. Further, that they rely on heuristics derived from stereotypes to aid them in their decisions. FCT is utilized as the theoretical premise to contextualize the likelihood of racial and ethnic differences in time-to-exoneration. The ability to understand time-to-exoneration using FCT provides insight into how these concerns affect racial and ethnic differences in time-to-exoneration that have not been previously tested. The results of the current study can aid in developing policy and guide in shaping reform measures.

II   Literature Review

A.   Racial and ethnic differences in exonerations

Research on exonerations demonstrates racial and ethnic differences are present in all major categories of crimes for which data are collected.[9] A review of the most comprehensive data on known exonerations in the US maintained by the National Registry of Exonerations, indicates racial and ethnic differences are also present in time-to-exoneration. Specifically, Black innocent defendants spend 45% more time wrongfully imprisoned before being exonerated than do White

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[7] George E Higgins, Gennaro F. Vito, & Elizabeth L. Grossi, "The impact of race on the police decision to search during a traffic stop: A focal concerns theory perspective" (2012) 28:2 J Contemp Crim Justice 166-183, online: <https://doi-org./10.1177/1043986211425725> [*Higgins 2012*]; Robert J Norris *et al*, "Thirty Years of Innocence: Wrongful Convictions and Exonerations in the United States, 1989-2018" (2020) 1:1 WCLR 2-58, online: <https://wclawr.org/index.php/wclr/article/view/11/23>.

[8] George E Higgins & Catherine Davis Marcum, Criminological theory, Aspen College series (New York: Wolters Kluwer, 2016).

[9] Marvin D Free & Mitch Ruesink, Race and justice: wrongful convictions of African American men (Boulder, Colo: Lynne Rienner Publishers, 2012); Marvin Free & Mitch Ruesink, "Flawed justice: A study of wrongly convicted African American women" (2018) 16:4 Journal of Ethnicity in Criminal Justice 333–347, online: <https://www.tandfonline.com/doi/full/10.1080/15377938.2015.1015199>; Gross *et al* 2017, supra note 4; Karen F. Parker, Mari A. DeWees, & Michael L. Radelet, "Race, the death penalty, and wrongful convictions" (2003) 18:1 Crim. Just 49, online: <https://heinonline.org/HOL/P?h=hein.journals/cjust18&i=51>; Arthur Rizer "The race effect on wrongful convictions" (2003) 29:3 Wm Mitchell L Rev 845, online: <http://open.mitchellhamline.edu/wmlr/vol29/iss3/5>; Earl Smith & Angela J Hattery, "Race, Wrongful Conviction & Exoneration" (2011) 15:1 J Afr Am St 74–94, online: <http://link.springer.com/10.1007/s12111-010-9130-5>.

innocent defendants.[10] The data indicates that for all offense types the average time served is 10.7 years for Black exonerees, 7.2 years for Hispanic exonerees, and 7.2 years for White exonerees.[11] Additionally, this data showed that in some categories of crimes, Hispanic innocent defendants served more time before exoneration than did White innocent defendants but less than Black innocent defendants.

Scholarly literature assessing the impact of race and ethnicity on time-to-exoneration is scant. The studies which do exist point to significant disparities. Gross *et al*. reviewed over 1,900 exonerations found that Black innocent defendants spend more time wrongfully imprisoned than White innocent defendants in every single category of crimes for which exoneration data was collected.[12] Similarly, in their examination of the impact of DNA on exonerations, Olney and Bonn also found that Black exonerees encounter the longest time-to-exoneration.[13]

Utilizing survival analysis, *Rafail and Mahoney* focused on the length of time it takes for exonerees to complete the process of exoneration.[14] Their findings exposed significant differences arising from factors of place, evidence type, and race. Further, the temporal gap in achieving exoneration was found to disadvantage Black exonerees.

None of these studies, however, contextualize their results using a theoretical context to the examination of racial and ethnic differences in time-to-exoneration. Leo argued scholarship on innocence is "theoretically impoverished".[15] The application of focal concerns theory provides the context to understand racial and ethnic differences in time-to-exoneration.

B.   Focal Concerns Theory

Focal concerns theory originally emerged as a theoretical model within the scholarly exploration of gender differences in sentencing.[16] In later years, Steffensmeier *et al*. expanded the theory to include other social characteristics such as race, ethnicity, and age.[17] The theory's key premise is that judges and other court actors are attuned to three focal concerns in arriving at decisions: blameworthiness, protection of the community, and practical implications of the

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[10] NRE 2018, *supra* note 7.

[11] NRE 2018, *supra* note 7.

[12] Gross *et al* 2017, *supra* note 4.

[13] Olney, *supra* note 6.

[14] Rafail & Mahoney, *supra* note 6.

[15] Richard A Leo, "Rethinking the study of miscarriages of justice: Developing a criminology of wrongful conviction" (2005) 21:3 J Contemp Crim Justice 213, online: <https://doi-org.ezproxy.lib.torontomu.ca/10.1177/1043986205277477>.

[16], Darrell J Steffensmeier "Assessing the Impact of the Women's Movement on Sex-Based Differences in the Handling of Adult Criminal Defendants" (1980) 26:3 Crime & Delinquency 344–357, online: <http://journals.sagepub.com/doi/10.1177/001112878002600305> [*Steffensmeier 1980*].

[17]Darrell Steffensmeier, Jeffery Ulmer & John Kramer, "The Interaction of Race, Gender, , and Age in Sentencing: The Punishment Cost of Being Young, Black, and Male" (1998) 36:4 Criminology 763–798, online: <https://onlinelibrary.wiley.com/doi/10.1111/j.1745-9125.1998.tb01265.x> [*Steffensmeier 1998*].

resulting decision".[18] In addition, a guiding principle of FCT is the understanding that judges and other decision makers often do not have enough information or have an overwhelming amount of information, and often a short amount of time in which to consider it when making decisions. In these circumstances, focal concerns theory argues they resort to heuristics to guide their decisions.

Scholarly research demonstrates to facilitate the decision-making process judges and prosecutors do resort to heuristics that incorporate stereotypical beliefs regarding an individual's race or ethnicity when considering blameworthiness, protection of the community, and practical constraints and consequences.[19] Further, this has been shown to result in disparities in the outcomes which often negatively impact minorities.[20]

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[18] Darrell Steffensmeier, Noah Painter-Davis & Jeffery Ulmer, "Intersectionality of Race, Ethnicity, Gender, and Age on Criminal Punishment" (2017) 60:4 Sociological Perspectives 813, online: <http://journals.sagepub.com/doi/10.1177/0731121416679371>.

[19] G Ford, "The New Jim Crow: Male and Female, South and North, from Cradle to Grave, Perception and Reality: Racial Disparity and Bias in America's Criminal Justice System." (2009) 11 *Rutgers Race & L. Rev.* 324; Celesta Albonetti, "Integration of Theories to Explain Judicial Discretion" (1991) 38:2 Social Problems 247–266; Tina Freiburger, "Race and the Sentencing of Drug Offenders: An Examination of the Focal Concerns Perspective." (2009) 6:2 Southwest Journal of Criminal Justice 163 [*Albonetti*]; Brian D Johnson, "Racial and ethnic disparities in sentencing departures across modes of conviction" (2003) 41:2 Criminol 449-490, online: <https://doi-org/10.1111/j.1745-9125.2003.tb00994.x> [*Johnson*]; Michael J. Leiber & Anita N. Blowers "Race and misdemeanor sentencing" (2003) 14:4 Crim Justice Policy Rev 464-485, online:<https://doi-org.ezproxy.lib.torontomu.ca/10.1177/0887403403254492>;
Darrell Steffensmeier & Stephen Demuth, "Ethnicity and Judges' Sentencing: Hispanic-Black-White Comparisons" (2001) 39:1 Criminology 145–178, online:
<https://onlinelibrary.wiley.com/doi/10.1111/j.1745-9125.2001.tb00919.x> [*Steffensmeier & Demuth 2001*]; Patricia Warren, Ted Chiricos & William Bales, "The Imprisonment Penalty for Young Black and Hispanic Males: A Crime-Specific Analysis" (2012) 49:1 Journal of Research in Crime and Delinquency 56–80, online: <http://journals.sagepub.com/doi/10.1177/0022427810397945> [*Warren*];

[20] George Bridges & Sara Steen, "Racial Disparities in Official Assessments of Juvenile Offenders: Attributional Stereotypes as Mediating Mechanisms" (1998) 63:4 American Sociological Review 554–570 [*Bridges & Steen*]; Stephen Demuth & Darrell Steffensmeier, "Ethnicity Effects on Sentence Outcomes in Large Urban Courts: Comparisons Among White, Black, and Hispanic Defendants *" (2004) 85:4 Social Science Quarterly 994–1011, online:
<https://onlinelibrary.wiley.com/doi/10.1111/j.0038-4941.2004.00255.x> [*Demuth & Steffensmeier 2004*]; Jill K Doerner & Stephen Demuth, "The Independent and Joint Effects of Race/Ethnicity, Gender, and Age on Sentencing Outcomes in U.S. Federal Courts" (2010) 27:1 Justice Quarterly 1–27, online: <https://www.tandfonline.com/doi/full/10.1080/07418820902926197> [Doerner & Demuth]; Susan Sharp, Adrienne Braley & Susan Marcus-Mendoza, "Focal Concerns, Race & Sentencing of Female Drug Offenders" (2000) 28:2 Free Inquiry in Creative Sociology 3–16 [*Sharp*]; Cassia Spohn & Lisa L Sample, "The Dangerous Drug Offender in Federal Court: Intersections of Race, Ethnicity, and Culpability" (2013) 59:1 Crime & Delinquency 3–31, online: <http://journals.sagepub.com/doi/10.1177/0011128708319928>.
 Darrell Steffensmeier, Noah Painter-Davis & Jeffery Ulmer, "Intersectionality of Race, Ethnicity, Gender, and Age on Criminal Punishment" (2017) 60:4 Sociological Perspectives 810–833, online: <http://journals.sagepub.com/doi/10.1177/0731121416679371> [*Steffensmeier 2017*]; Sara Steen, Rodney

In recent years, scholars have applied FCT to a variety of settings and actors within the criminal justice system. These include decisions made by prosecutors, police officers, corrections officers, and parole officers, as well as decisions made by judges at all stages of the legal process.[21] The literature demonstrates support for FCT and consequent disparities based on race even when accounting for different modes of conviction and varying types of prosecutorial and judicial discretion.[22]

In recent years, empirical support has been found for combined effects of the interaction of extra-legal factors such as race, ethnicity, gender, age, employment, and education, in decision making.[23] The literature shows that, net of legal factors, the impact of these interactions often disadvantages Blacks and Hispanics in the outcomes realized.[24]

Though FCT has been utilized to provide context in the empirical analysis of decision making and outcomes across a diverse range of legal processes, it has not been utilized in examining the impact of race and ethnicity on time-to-exoneration. The literature review supports the legitimacy of the application of this theory to the decision to exonerate.

L Engen & Randy R Gainey, "Images of Danger and Culpability: Racial Stereotyping, Case Processing, and Criminal Sentencing" (2005) 43:2 Criminology 435–468, online: <https://onlinelibrary.wiley.com/doi/10.1111/j.0011-1348.2005.00013.x>.

[21] Dawn Beichner & Cassia Spohn, "Modeling the Effects of Victim Behavior and Moral Character on Prosecutors' Charging Decisions in Sexual Assault Cases" (2012) 27:1 Violence Vict 3–24, online: <http://connect.springerpub.com/lookup/doi/10.1891/0886-6708.27.1.3>; Higgins 2012, supra note 7 ; Glen A. Ishoy & dean A. Dabney, "Policing and the focal concerns framework: Exploring how its core components apply to the discretionary enforcement decisions of police officers" (2017) 39:7 Deviant Behav 878-895, online: <https://doi-org./10.1080/01639625.2017.1335537>; Anthony Gennaro Vito, Elizabeth L Grossi & George E Higgins, "Analyzing racial profiling from traffic searches: Using focal concerns theory and propensity score matching" (2018) 41:6 PIJPSM 721–733, online: <https://www.emerald.com/insight/content/doi/10.1108/PIJPSM-06-2017-0081/full/html>; Beth M Huebner, & Timothy S. "An analysis of parole decision making using a sample of sex offenders: A focal concerns perspective" (2006) 44:4 Criminol 961-991, online: <https://doi-org./10.1111/j.1745-9125.2006.00069.x>; Tina Freiburger, Catherine D Marcum & Mari Pierce, "The Impact of Race on the Pretrial Decision" (2010) 35:1–2 Am J Crim Just 76–86, online: <http://link.springer.com/10.1007/s12103-009-9069-z> [*Freiburger 2010*]; Steffensmeier & Demuth 2001, supra note 19.

[22] Johnson*, ibid.*

[23] Steffensmeier 2017*, supra* note 20.

[24] Doerner & Demuth, supra note 20; Ben Feldmeyer *et al,* "Racial, Ethnic, and Immigrant Threat: Is There a New Criminal Threat on State Sentencing?" (2015) 52:1 Journal of Research in Crime and Delinquency 62–92, online: <http://journals.sagepub.com/doi/10.1177/0022427814548488>; *Freiburger 2010, supra* note 21; Cassia Spohn & David Holleran, "The Imprisonment Penalty Paid by Young, Unemployed Black and Hispanic Male Offenders" (2000) 38:1 Criminology 281–306, online: <https://onlinelibrary.wiley.com/doi/10.1111/j.1745-9125.2000.tb00891.x>; *Steffensmeier 2017, supra* note 20 ; *Warren, supra* note 19.

III Purpose of the Study

The purpose of this study is to examine exoneration data for evidence of racial and ethnic differences in time-to-exoneration. Additionally, time-to-exoneration is examined in the context of FCT to guide in greater understanding of any disparities found. The results of this study are useful in understanding the decision-making process of judges in deciding exonerations. The study addresses two hypotheses derived from the focal concerns theoretical perspective:

Hypothesis 1: Racial and ethnic differences are present in length of time-to-exoneration.
Hypothesis 2: The legal components of a case are associated with the racial and ethnic differences in the length-of-time-to-exoneration.

IV Methods

The data utilized in this study comes from a comprehensive database maintained by the National Registry of Exonerations (NRE). The data for this study used a subsample (N= 489) of the larger data set of exonerations from the NRE.[25] The data used were of exonerations which occurred from the years 2008 to 2018. This was done to provide a manageable subsample of the population and still provide a decade's worth of exoneration information.

A. Measures

The measures for this study include whether an exoneration took place within a specified number of days, as well as extralegal and legal factors that are associated with studies of FCT. The independent variable for this study is the race or ethnicity of the exoneree. The dependent variable is the length of time-to-exoneration.

A central measure to this study is capturing the number of days that it takes an individual to be exonerated.[26] To calculate this measure, the conviction date was subtracted from the exoneration date. This provided the exact number of days to exoneration.

Another key measure is whether an exoneration took place in a specified amount of time.[27] In other words, this provides a specific time of occurrence for the study. The median was calculated for this measure. For the median of days, the exoneration event was coded as 1 for above the median and 0 for below the median.

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[25] *Public Spreadsheet [Dataset and Code Manual]* (National Registry of Exonerations, 2019). The original sample (N = 507) contained 18 exonerees whose race or ethnicity was not White, Black, or Hispanic. Those 18 exonerees were excluded from the sample, resulting in the sample size N = 489.

[26] David G Kleinbaum & Mitchel Klein, Survival Analysis: A Self-Learning Text, Statistics for Biology and Health (New York, NY: Springer New York, 2012) [*Kleinbaum*].

[27] Christiana Kartsonaki, "Survival analysis" (2016) 22:7 Diagnostic Histopathology 263–270, online: <https://linkinghub.elsevier.com/retrieve/pii/S1756231716300639>.

The literature is diverse when it comes to measuring the different aspects of this version of FCT. This dissertation follows the sentencing literature and groups the measures that are available in the data into the context of extralegal and legal factors.[28]

The available extralegal factors that exist in the data are age, race, ethnicity, and biological sex. Age is captured in years at the time of crime commission. Race/ethnicity is captured as a nominal level measure. In this study, White refers to non-Hispanic Whites and Blacks refer to non-Hispanic Blacks. Due to potential data constraints (i.e., small n's within categories), three dummy codes for race were used, and they are as follows: 1 = White and 0 = other, 1= Black and 0 = other, 1 = Hispanic and 0 = other. For the purposes of survival analysis, race was coded 0 = White and 1= Black and 0 = White and 1 = Hispanic. Coding race/ethnicity in this way facilitates two comparative analyses of days-to-exoneration.[29] The first analysis compares Whites to Blacks, and the second analysis compares Whites to Hispanics. Additionally, multivariate analyses compared subsamples differentiated by race/ethnicity. Biological sex is captured as the biological sex of the individual at the time of the crime. The measure was recoded so that 0 = female and 1 = male.

Several legal factors were used in this analysis. The legal factors are false or misleading forensic evidence, perjury or false accusation, mistaken eyewitness identification, official misconduct, inadequate legal defense, drug crime, and violent crime. They are as described below. This measure was coded as 0 = no and 1 = yes.

False or misleading forensic evidence: This is a single item indicator that means the individual's conviction was based at least in part on forensic information that consisted of one or more of the following criteria: (1) caused by errors in forensic testing, (2) based on unreliable or unproven methods, (3) expressed with exaggerated and misleading confidence, or (4) fraudulent.[30] This measure was coded as 0 = no and 1 = yes.

Perjury or False Accusation: A person other than the individual committed perjury by making a false statement under oath that incriminated the individual in the crime for which the individual was later exonerated or made a similar unsworn statement that would have been perjury if made under oath (NRE, 2019).[31] This measure was coded as 0 = no and 1 = yes.

Mistaken Eyewitness ID: This refers to at least one eyewitness affirmatively and mistakenly said that he or she saw the individual commit the crime or saw the individual under

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[28] Albonetti, *supra* note 19; Steffensmeier 1998, *supra* note 17; Steffensmeier & Demuth 2001, *supra* note 19;

[29] The number defendants that were of a race or ethnicity other than Black, Hispanic, or White due was so small (n = 18) that they were excluded from this study.

[30] Gerald LaPorte, "Wrongful Convictions and DNA Exonerations: Understanding the Role of Forensic Science" (2017) 279 NIJ Journal, online: <https://nij.ojp.gov/topics/articles/wrongful-convictions-and-dna-exonerations-understanding-role-forensic-science>; National Registry of Exonerations "Glossary" (2019), online: <https://www.law.umich.edu/special/exoneration/Pages/glossary.aspx>

[31] Jon Gould & Richard Leo, "One Hundred Years Later: Wrongful Convictions after a Century of Research" (2010) 100:3 Journal of Criminal Law and Criminology 825, online: <https://scholarlycommons.law.northwestern.edu/jclc/vol100/iss3/7>.

circumstances that suggest that the individual participated in the crime.[32] This measure was coded as 0 = no and 1 = yes.

Official Misconduct: Police, prosecutors, or other government officials significantly abused their authority or the judicial process in a manner that contributed to the individual's conviction.[33] This measure was coded as 0 = no and 1 = yes.

Inadequate Legal Defense: The individual's lawyer at trial provided obviously and grossly inadequate representation.[34] This measure was coded as 0 = no and 1 = yes.

Drug Crime: Whether the offense was a drug related offense was considered a legal factor.[35] This measure was coded as 0 = no and 1 = yes.

Violent Crime: Whether the offense was violent was considered a legal factor.[36] This measure was coded as 0 = no and 1 = yes.

B. Data Analysis Plan

The data analysis occurred in a series of steps. Step one is a presentation of the overall descriptive statistics. By utilizing univariate statistics, this step offers a brief description of the distribution of the sample.

Step two is a presentation of the survival analysis. This is important in addressing the first hypothesis. Survival analysis is a family of techniques designed to model the time it takes for an event to occur when there is a possibility that the event will not occur for all in a given sample .[37] This type of data is often non-normal. This is because of censoring, a common feature of survival analysis.[38]

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[32] Jon Gould *et al*, Predicting Erroneous Convictions: A Social Science Approach to Miscarriages of Justice (Washington, DC: National Institute of Justice: 241389, 2012); *NRE Glossary, supra* note 1.

[33] Peter A. Joy, "Brady and jailhouse informants: Responding to injustice" (2006) 57:3 Case W Res L Rev 619, online: <https://scholarlycommons.law.case.edu/caselrev/vol57/iss3/14/>; *NRE Glossary, supra* note 1.

[34] Sharp*, supra* note 20; NRE Glossary*, supra* note 1.

[35] Demuth & Steffensmeier 2004*, supra* note 20.

[36] Steffensmeier 2017, *supra* note 20; Darrell Steffensmeier & Stephen Demuth, "Ethnicity and Sentencing Outcomes in U.S. Federal Courts: Who is Punished More Harshly?" (2000) 65:5 American Sociological Review 705-729, online: <http://www.jstor.org/stable/2657543?origin=crossref>.

[37] D.R. Cox, "Regression Models and Life-Tables" (1972) 34:2 Journal of the Royal Statistical Society Series B: Statistical Methodology 187–202, online: <https://academic.oup.com/jrsssb/article/34/2/187/7027194>; D R Cox & David Oakes, Analysis of survival data, Monographs on statistics and applied probability (London ; New York: CRC Press, 1984) [*Cox & Oakes*].

[38] Kwang-Moon Leung, Robert M. Elashoff, & Abdelmonem Afifi "Censoring issues in survival analysis" (1997) 18:1 Annu Rev Public Health 83-104, online:

The Kaplan-Meier technique was used to determine the proportion of individuals who were exonerated by the median time-to-exoneration established. In this study time was measured in days. This technique provides a method of estimating the length of time that it will take for someone to be exonerated.[39] The survival and hazard functions are presented graphically.

The Kaplan-Meier also allowed for a direct test of the difference of these functions by groups. In the present study, the groups were differentiated by race and ethnicity. The comparison of the groups took place using the log rank test. Applied to this study, the log rank test allowed for the examination of the survival and hazard functions of exoneration by race/ethnicity.[40] To do this, the log rank test allows the survival and hazard functions to be weighted equally with time. This provided the opportunity for a chi-square test of difference between exoneration by racial/ethnic group.

Step three consists of logistic regression. In addressing the second hypothesis logistic regression is important because of the dichotomous nature of the dependent measure. Specifically, the median time-to-exoneration is dummy coded "0" for exonerated before the median time of 1,000 days and "1" for exonerated after the median time-to-exoneration. The logistic regression model allows for a dichotomous dependent variable while examining the impact of multiple predictor variables.

When interpreting the coefficients in this form of regression, it is important to understand the coefficients represent a link between the covariates and the odds of falling into the group of exonerees who were not exonerated by the median time-to-exoneration. The interpretation of the dummy variables indicated either an increased or decreased likelihood of being exonerated by the median time for that variable. The effect size for this form of logistic regression is the Exp(b). In this form of regression, the Exp(b) is interpreted as an odds ratio.[41] In the present study this form of binomial logistic regression allowed for the proper modeling of the dichotomous dependent measure, days to exoneration, and the legal and extralegal measures representing the focal concerns theory to address the hypotheses of interest.

In this study five models are estimated. The first model consists of all the data and the legal and extralegal measures for a subsample of only Black and White exonerees. The second model is

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<https://doi.org/10.1146/annurev.publhealth.18.1.83>.

[39] E. L Kaplan & Paul Meier, "Nonparametric estimation from incomplete observations" (1958) 53:282 JASA 457-481, online: <https://doi.org/10.1080/01621459.1958.10501452> [*Kaplan-Meyer*]; John P Klein & Melvin L Moeschberger, "Refinements of the Semiparametric Proportional Hazards Model" in Survival Analysis (New York, NY: Springer New York, 1997) 269; *Kleinbaum, supra* note 26.

[40] *Kaplan-Meyer Ibid; Cox & Oakes, supra* note 37; Singh, Ritesh & Keshab Mukhopadhyay, "Survival analysis in clinical trials: Basics and must know areas" (2011) 2:4 Perspect Clin Res 145, online: <https://journals.lww.com/10.4103/2229-3485.86872> [*Singh & Mukhopadhyay*].

[41] Cox & Oakes, *supra* note 37; Fox, John, "Cox proportional-hazards regression for survival data. An R and S-PLUS companion to applied regression" (2002); Frank E. Harre, Jr, Kerry L. Lee, & Barbara G. Pollock, "Regression models in clinical studies: determining relationships between predictors and response" (1988) 80:15 JNCI 1198-1202, online: <https://doi.org/10.1093/jnci/80.15.1198>; Singh & Mukhopadhyay Ibid.

comprised of all the data and the legal and extralegal measures for a subsample of only Hispanic and White exonerees. The third model is for the data for White exonerees. The fourth model is for the data for Black exonerees. The fifth model consists of the data for Hispanic exonerees.

To address the hypothesis that there are racial differences in the focal concern measures, the Paternoster *et al.* z-score was applied to the slopes and standard errors of the White, Black, and Hispanic models.[42] Applying the z-score allowed for the understanding of whether the focal concern measures are equal across the racial and ethnic groups.

V   Results

The current study is designed to provide an understanding of the impact of race and ethnicity on time-to-exoneration. To provide this understanding of time-to-exoneration, the study makes use of FCT. The results of the study are presented in a series of steps.

The first step is a presentation of the descriptive statistics. The full results of the descriptive statistics measure are shown in Table 1. Black exonerees comprised 46% of the sample, White exonerees 41%, and Hispanic exonerees 13%. Male exonerees were 85% of the sample. This is in line with known statistics regarding gender and incarceration. The mean time-to-exoneration was found to be 1,223.12 days. The median time-to-exoneration was 1,000 days. As expected, it was found that the exoneration event variable needed to be censored, pointing to the necessity for survival analysis.

Table 1. Descriptive Statistics of the Measures

Measure	Mean	Median	Standard Deviation	Min	Max
Biological Sex (Male)	.85	-	-	0	1
Age	32.60	-	11.44	13	83
Race/Ethnicity					
White	.41	-	-	0	1
Black	.46	-	-	0	1
Hispanic	.13	-	-	0	1
Official Misconduct	.35	-	-	0	1
Inadequate Legal Defense	.24	-	-	0	1
Drug Crime	.39	-	-	0	1

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[42]Raymond Paternoster, *et al* "Using the correct statistical test for the equality of regression coefficients" (1998) 36:4 Criminology 859-866, online: <https://doi.org/10.1111/j.1745-9125.1998.tb01268.x> [*Paternoster, et al*].

Violent Crime	.29	-	-	0	1
False/Misleading Forensic Evidence	.27	-	-	0	1
Mistaken Eyewitness ID	.10	-	-	0	1
Perjury or False Accusation	.40	-	-	0	1
Dependent Measure		-	-	-	-
Time (days) to Exoneration	1223.12	1000	1013.823	3	8199

N = 489

In step two Kaplan Meier analysis was performed. The results can be seen in Figure 1 and Figure 2 below. The Kaplan-Meier analysis demonstrated that the survival and hazard functions do vary by race and ethnicity. Specifically, the results showed that Black exonerees experienced a longer time-to-exoneration than did White exonerees. The Chi-square statistic indicated the differences were significant. These results provide supporting evidence for the first hypothesis. Additionally, it provides supportive evidence for FCT in the context of time-to-exoneration.

The results of the second Kaplan-Meier analysis indicated that overall, Hispanic exonerees experienced a shorter time-to-exoneration than did White exonerees, though the Chi-square indicated the differences were not significant.

Figure 1. Survival Analysis Results of Blacks versus Whites Median Days to Exoneration
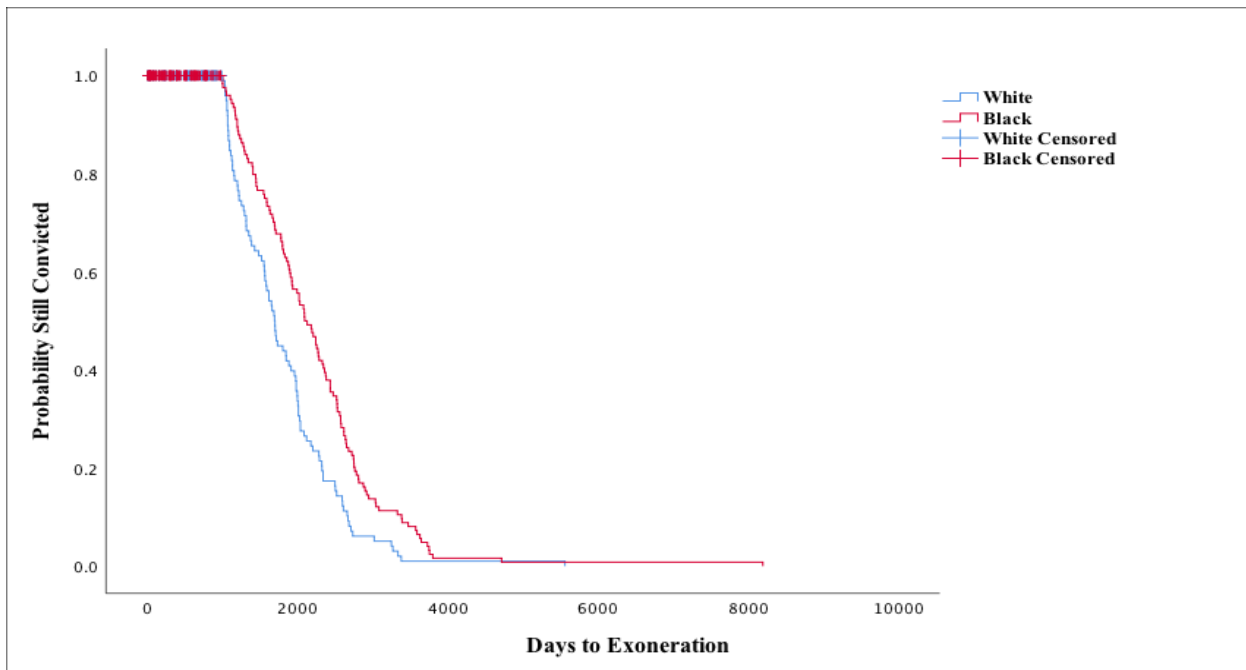
Chi-square = 14.75, 1 *df* *p= .000

Figure 2. Survival Analysis Results of Hispanics versus Whites Median Days to Exoneration
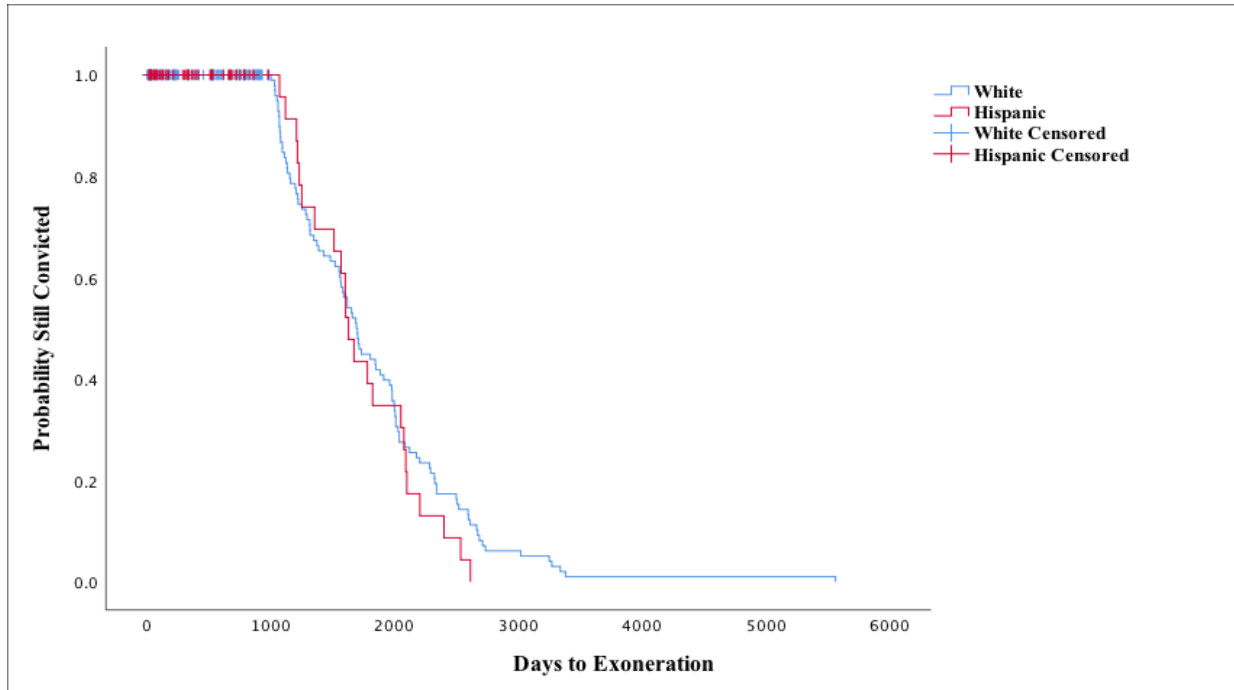
Chi-square = .610, 1 *df* p = .435

In step three, logistic regression analysis was performed to explore how the extralegal and legal measures are associated with the time-to-exoneration. First, logistic regression was performed on a group which included only Black exonerees with White exonerees as the comparison. Second, logistic regression was performed on a group which included only Hispanic exonerees with White exonerees as the comparison.

Table 2 illustrates the results of the Black vs White exoneree group analysis. Results indicate the legal variable of Inadequate Legal Defense (b = .580, Exp(b) = 1.787, p <.05) and being convicted of a Violent Crime (b= .739, Exp(b) = 2.095, p < .01) resulted in an increase of the likelihood of a longer time-to-exoneration. The race of the exoneree was not found to be a significant factor in time-to-exoneration.

The results of this group comparison do not support the first hypothesis but are supportive of the second hypothesis. Additionally, the increase in time-to-exoneration for those convicted of a violent crime supports the premise of FCT that severity of the crime is of importance to decision makers.[43]

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[43] Steffensmeier 1998, *supra* note 17.

Table 2. Black and White Group Exonerees Logistic Regression Analysis N= 421

Measure	B	SE	Exp (B)	Tolerance
Biological Sex (Male)	.533	.302	1.704	.933
Age	.008	.010	1.008	.858
Race/Ethnicity (Black)	.405	.228	1.499	.828
Official Misconduct	.477	.261	1.612	.709
Inadequate Legal Defense	.580*	.267	1.787	.830
Drug Crime	-.526	.330	.591	.416
Violent Crime	.739**	.298	2.095	.568
False/Misleading Forensic Evidence	.422	.297	1.524	.620
Mistaken Eyewitness ID	-.449	.421	.639	.659
Perjury or False Accusation	-.168	.276	.845	.584
-2logliklihood = 539.378				
Nagelkerke R^2 = .130				
Cox & Snell R^2 = .097				
Chi-square = 42.994 p =.000				

* $p < .05$ ** $p < .01$

Table 3 illustrates the results of the Hispanic vs White exoneree group analysis. The results showed the legal variable False or Misleading Forensic Evidence (b= 1.038, Exp(b) = 2.823, $p < .01$) and being convicted of a Violent Crime (b= .913, Exp(b) = 2.491, $p < .01$) resulted in a greater likelihood of being exonerated after the median time. Exonerees who had been convicted of a Drug Crime were shown to be 64.1 % less likely (b= - 1.025, Exp(b) = .359, $p < .05$) to be exonerated after 1,000 days. The race and ethnicity of the exoneree was not found to impact time-to-exoneration for this group.

The results of this group comparison are not supportive of the first hypothesis. However, these results do show support for the second hypotheses. Additionally, these findings demonstrate support for FCT which proposes legal factors do wield influence on outcomes.

Table 3. Hispanic and White Group Exonerees Logistic Regression Analysis N= 266

Measure	B	SE	Exp (B)	Tolerance
Biological Sex (Male)	.157	.380	1.170	.929
Age	.001	.012	1.001	.824
Race/Ethnicity (Hispanic)	-.390	.338	.677	.885
Official Misconduct	.105	.326	1.110	.724

Measure	B	SE	Exp (B)	Tolerance
Inadequate Legal Defense	.593	.332	1.810	.836
Drug Crime	-1.025*	.431	.359	.510
Violent Crime	.913**	.345	2.491	.730
False/Misleading Forensic Evidence	1.038**	.400	2.823	.798
Mistaken Eyewitness ID	.580	.711	1.786	.885
Perjury or False Accusation	.276	.332	1.318	.657
-2logliklihood = 316.370	-	-	-	-
Nagelkerke R^2 = .230	-	-	-	-
Cox & Snell R^2 = .172	-	-	-	-
Chi-square = 50.216 p =.000	-	-	-	-

* $p < .05$ ** $p < .01$

Probing this for racial and ethnic differences among the FCT concepts, next logistic regression analysis was re-estimated for each race and ethnicity. After the estimation of this regression, the Paternoster *et al*. z-score was applied to assess any racial differences that occur in the measures of focal concerns as they relate to time-to-exoneration.[44] The results of the regression analysis and z-scores for the whole sample are depicted in Table 4.

The data shows that 49.5% of White exonerees experienced a time-to-exoneration more than 1,000 days. The results of the regression analysis show that for White exonerees False or Misleading Forensic Evidence resulted in being 2.816 times more likely (b= 1.035, Exp(b) = 2.816, p < .05) to be exonerated after the median time. The legal factor of Drug Crime was found to decrease the odds of having to wait longer than 1,000 days for exoneration by 73%. These results are supportive of FCT in that legal measures were found to impact time-to-exoneration.

The data reveals that 56% of Black exonerees experienced a time-to-exoneration that was greater than the median time. The results indicate for Black exonerees Official Misconduct resulted in being 2.283 times more likely (b= .825, Exp(b) = 2.283, p < .05) to wait longer than 1,000 days to be exonerated. The results also showed Inadequate Legal Defense resulted in being 2.477 times more likely (b=.907, Exp(b) = 2.477, p < .05) to be exonerated beyond the median time. These results support the second hypothesis as well as the FCT measures in that legal measures affected time-to-exoneration for Black exonerees.

The data shows that 34% of Hispanic exonerees were incarcerated more than approximately three years while waiting to be exonerated. The results indicate for every one unit increase in age at the time of crime commission, there was a decrease of 7.9% (b = -.082, Exp(b) = .921, p <.05) in the likelihood of being exonerated after 1,000 days. Inadequate Legal Defense

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[44]Paternoster*, et al, supra* note 42.

(b= 4.749, Exp(b) = 115.45, p < .000) resulted in a Hispanic exoneree being 115.45 times more likely to wait more than 1,000 days to be exonerated. The legal variable Violent Crime was shown to result in being 41.801 times more likely (b= 3.733, Exp(b) = 41.801, p < .01) to spend more than 3 years incarcerated before being exonerated. False or Misleading Forensic Evidence resulted in a Hispanic exoneree being 15.956 times more likely (b= 2.770, Exp(b) = 15.956, p < .01) to wait longer than 1,000 days to be exonerated. The findings for the Hispanic exonerees demonstrate support for the second hypotheses that the legal and non-legal measures representing FCT are associated with racial and ethnic differences in time-to-exoneration.

The results of the logistic regression analysis within each racial and ethnic group provide support for the second hypothesis. Further, support for the influence of both the legal and non-legal measures which represent the FCT measures is demonstrated. Specifically, the results indicated that the impact of these variables on time-to-exoneration were not the same for all races and ethnicities.

Next, to establish whether the disparities between racial and ethnic groups was statistically significant, the Paternoster *et al*. z-score was applied.[45] The results of this analysis can be seen in Table 4. The results showed no significant differences in the impact on time-to-exoneration when comparing the disparities in the FCT measures between White exonerees and Black exonerees. However, there were several significant disparities found between Hispanic exonerees and White exonerees. Namely, the differences in the slopes of the extra-legal measure of age, and the legal measures of Inadequate Legal Defense and Violent Crime were found to be statistically significant.

The results indicate that the impact of being younger at the time of conviction was stronger (p <.05) for Hispanics than for White exonerees, resulting in greater time-to-exoneration for younger wrongfully convicted Hispanics than for younger wrongfully convicted White exonerees. Similarly, the detriment to Hispanic exonerees who had Inadequate Legal Defense in their case, was greater (p <.05) than it was for White exonerees with this factor. Lastly, the impact of being convicted of a Violent Crime was greater for Hispanic exonerees (p <.05) than it was for White exonerees, resulting in significantly greater likelihood for Hispanic exonerees of experiencing a time-to-exoneration which exceeded 1,000 days. These results are supportive of the first and second hypothesis. Further, they offer support for FCT premise that legal and non-legal factors affect outcomes.

Table 4. Logistic Regression Analysis of Exonerees by Race/Ethnicity

	White			Black			Hispanic			Black/ White	Hispanic White
Measure	B	SE	Exp (B)	B	SE	Exp (B)	B	SE	Exp (B)	Z-score	
Biological Sex (Male)	.271	.415	1.311	.813	.474	2.255	-.302	1.159	.739	.63	.47
Age	.007	.014	1.007	.011	.014	1.011	-.082*	.041	.921	.20	2.1*

[45] *Ibid*.

Measure	White			Black			Hispanic			Black/ White	Hispanic White
	B	SE	Exp (B)	B	SE	Exp (B)	B	SE	Exp (B)	Z-score	Z-score
Official Misconduct	.078	.363	1.081	.825*	.407	2.283	1.025	.984	2.787	.55	1.1
Inad Legal Defense	.286	.359	1.331	.907*	.419	2.477	4.749***	1.604	115.45	1.13	3.1*
Drug Crime	-1.315*	.545	.268	-.055	.457	.947	1.106	1.176	3.022	-1.77	-1.9
Violent Crime	.712	.386	2.037	.841	.499	2.319	3.733**	1.437	41.801	-.20	-2.0*
False/Mis Forensic Ev	1.035*	.488	2.816	-.033	.404	.968	2.770**	1.098	15.956	1.69	-1.4
Mistaken Eyewit ID	1.166	1.158	3.208	-.838	.557	.433	1.130	1.981	3.095	1.56	.02
Perjury/False Accus	.019	.370	1.020	-.516	.441	.597	1.861	1.059	6.429	.93	-1.6

2logliklihood = 246.085				= 282.711			= 49.145				
Nagelkerke R^2 = .178				= .135			= .592				
Cox & Snell R^2 = .134				= .101			= .427				
Chi-square =	28.381 p =.001			= 23.624 p = .005			= 37.876 p =.000				
	N = 198			N=223			N=68				

*p<.05   **p <.01   ***p <.000

VI Discussion

The results of this study demonstrate support for the first hypothesis that racial and ethnic differences do occur in days-to-exoneration. Specifically, Black exonerees were shown to experience longer times to exoneration than White and Hispanic exonerees. The results of this study also show support for the second hypothesis that the legal components of a case are associated with racial and ethnic differences in time-to-exoneration. Illustrating this, while overall as a group Hispanics were not shown to spend more time before being exonerated than Whites or Blacks, it was demonstrated that certain legal variables resulted in Hispanics being more likely to experience longer times to exoneration than White exonerees with those same factors and the differences were statistically significant. This finding suggests inequity in the way these factors affected the different racial and ethnic groups.

In addition, this study provides support for the FCT premise that both legal and extralegal factors impact outcomes. In this study, it was shown that a violent crime conviction impacted the

length of time-to-exoneration. This is consistent with FCT research .[46] However, it was illustrated that the level of the severity of the crime did not impact all races and ethnicities in the same manner.

The study illustrated Inadequate Legal Defense resulted in a longer time-to-exoneration for Hispanic exonerees than for White exonerees with this same factor. This illustrates support for FCT in that it illustrates how stereotypes surrounding minorities and proclivity for criminal activity may impact access to adequate legal resources and result in detriment to certain racial and ethnic groups. Additionally, this finding may indicate bias towards minorities who are non-English speaking, impacting their ability to secure adequate legal defense.

Support for the FCT was demonstrated in that the non-legal measure of age was found to be significant for Hispanic exonerees when compared to White exonerees. Hispanic exonerees who were younger at the time of conviction spent longer awaiting an exoneration than White exonerees who were younger at the time of conviction. This illustrates the prominent stereotype of young minority's association with drugs, violence, and crime in general which is commonly portrayed through popular media in our society.[47]

The results of this study point to racial and ethnic differences in time-to-exoneration which disadvantages minorities and echoes the findings of other studies which have examined race and time-to-exoneration.[48] Additionally, this study demonstrates that legal components of a case do impact the racial and ethnic groups differently regarding time-to-exoneration. Support is found for the FCT premise that this is as a result of a reliance on stereotypes that suppose criminality to be a persistent attribute of non-Whites. [49]

A. Policy and Programming

It is widely acknowledged that for justice policy and programming to be effective, empirical study must go beyond informing on the state of the issue at hand and provide the critical link between research and practice.[50] Therefore, the following recommendations are offered for consideration.

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[46] John Kramer & Darrell Steffensmeir, "Race and Imprisonment Decisions" (1993) 34:2 The Sociological Quarterly 357–376, online: <https://www.jstor.org/stable/4120706>; Steffensmeier 1998, *supra* note 17 ; Jeffery T Ulmer & Brian Johnson, "SENTENCING IN CONTEXT: A MULTILEVEL ANALYSIS" (2004) 42:1 Criminology 137–178, online:
<https://onlinelibrary.wiley.com/doi/10.1111/j.1745-9125.2004.tb00516.x>.

[47] Warren, *supra* note 19.

[48] Olney, *supra* note 6; *Gross et al 2017, supra* note 4 ; Rafail & Mahoney, *supra* note 6.

[49] Albonetti, *supra* note 19; Steffensmeier 1998, *supra* note 17; Bridges & Steen, *supra* note 20.

[50] Richard R. Bennett, "Comparative criminology and criminal justice research: The state of our knowledge" (2004) 21:1 Justice Quarterly 1–21, online:
<https://www.tandfonline.com/doi/full/10.1080/07418820400095721>; John Gregrich, "A note to researchers: Communicating science to policy makers and practitioners" (2003) 25:3 Journal of Substance Abuse Treatment 233–237, online: <https://linkinghub.elsevier.com/retrieve/pii/S074054720300120X>; Daniel P. Mears, "Towards rational and evidence-based crime policy: (2007) 35:6 JCJ 667-682, online: <https://doi.org/10.1016/j.jcrimjus.2007.09.003>; Daniel P Mears & Sarah Bacon "Improving criminal

First, it is recommended that widespread training to address racial and ethnic stereotypes be implemented among the agencies and actors responsible for addressing claims of innocence. Evidence based research from the field of social-cognitive psychology indicates it is possible to reduce unconscious bias and reliance on stereotypes through education and training.[51] Applied to the criminal justice system, this education and training would likely have a positive impact on reducing racial and ethnic disparities.

Second, it is recommended that Congressional legislation be enacted that would require states to regularly assess racial and ethnic disparities in the post-conviction process and report the findings to qualify for available funding. This recommendation is based on a model of reforms within the juvenile justice system that were mandated by the Juvenile Justice Delinquency and Prevention Act (JJDPA). Drawing from this model, all states would be required to address racial and ethnic disparities in the post-conviction processes through identification of the points where racial and ethnic bias are present, the development of action plans, and by performing outcome-based evaluations. Additionally, states would be required to publish the results of the outcome-based evaluations annually, promoting transparency. The states would also be required to establish or designate existing bodies comprised of diverse stakeholders to act in an advisory capacity towards the aims of reducing racial and ethnic bias. In the context of the adult justice system, it is likely that such requirements would be effective for reducing racial and ethnic disparities in the time-to-exoneration of wrongfully convicted minorities.

Third, research has repeatedly exposed the striking invisibility of Hispanic and Latino individuals in the criminal justice data.[52] Capturing data is critical to transparency. The justice system is woefully lacking on consistent data leaving criminal justice actors very much in the dark and forced to rely on their own "gut" instinct in arriving at their decisions.[53] Therefore, data

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justice through better decision making: Lessons from the medical system" (2009) 37:2 JCJ 142-154, online: <https://doi.org/10.1016/j.jcrimjus.2009.02.001>.

[51] Irene V Blair, "The Malleability of Automatic Stereotypes and Prejudice" (2002) 6:3 Pers Soc Psychol Rev 242–261, online: <http://journals.sagepub.com/doi/10.1207/S15327957PSPR0603_8>; Diana Burgess *et al*, "Reducing Racial Bias Among Health Care Providers: Lessons from Social-Cognitive Psychology" (2007) 22:6 J GEN INTERN MED 882–887, online: <http://link.springer.com/10.1007/s11606-007-0160-1>; Kareem J Johnson & Barbara L. Fredrickson, "We all look the same to me: Positive emotions eliminate the own-race bias in face recognition" (2005) 16:11 Psychol Sci 875-881, online: <https://doi-org/10.1111/j.1467-9280.2005.01631.x>; Devin G. Pope & Joseph-Prince Justin Wolfers "Awareness Reduces Racial Bias" (2013) 64:11 Management Science 4988-4995, online: <https://doi.org/10.1287/mnsc.2017.2901>.

[52] Neelum Arya *et al*, "America's Invisible Children: Latino Youth and the Failure of Justice" (2009) SSRN Journal, online: <http://www.ssrn.com/abstract=1892966>; R A Valencia, "Latinos and the Criminal Justice System: An Overview of the Invisible/Visible Minority" (1994) 27:1 Harv Latino L Rev, online: <https://escholarship.org/uc/item/3664v2kc>.

[53] Pierre H Bergeron & Michael P Donnelly, "How a Spreadsheet Could Change the Criminal-Justice System", (14 December 2020), online: The Atlantic

collection guidelines and procedures that record ethnicity consistently throughout the justice system are of paramount importance to facilitate accurate analysis of criminal justice data and guide reforms that address ethnic disparities.[54]

Lastly, it is suggested that considerable attention be devoted to the problems inherent in communications with minorities who speak little to no English. Research shows language barriers pose significant hurdles for Hispanics and Latinos, which often impacts their ability to comprehend what is transpiring in the legal process at all stages.[55] This study illustrated the impact of certain factors which resulted in a longer time to on the length of time a Hispanic exoneree experienced, including inadequate legal defense. Problems with communication due to language barriers prevent non-English speaking defendants from accessing adequate representation, from responding to authorities in ways that could be beneficial to them, and from accessing information needed to pursue and exoneration.[56] Therefore, it is recommended that policies be put in place that guarantee translation services that have been vetted will be provided to all individuals who require them. Furthermore, it is recommended that the appropriate steps be taken to ensure easy access to legal forms, transcripts, and other media in the language of the individual seeking an exoneration.

VII   Limitations

While the current dissertation contributes to the literature on time-to-exoneration, it is not without limitations. This study uses secondary data that does not directly or completely measure the concepts of FCT. Second, the possibility exists the data in the study are not accurate. To date, these data have been considered the most comprehensive and representative data on exonerations.[57] Third, consistent with the biases of exonerations, which are more likely to occur with more severe crimes, violent crimes are overrepresented in the data which presents a statistical limitation. Fourth, the data considered Hispanic as a separate category but did not specify what races were captured within this category. It is therefore possible that race and ethnicity could be crossed. Fifth, the number of Hispanic exonerees in this study was relatively small, which could impact the estimates. Sixth, the data on exonerations represented actual exonerations as captured by the NRE and, as such, was not equally distributed across geographical locations. This presents the possibility that factors associated with place could have an impact on the findings. Lastly, the data does not provide any measures on access to legal services and other support that may have an impact on time-to-exoneration.

<https://www.theatlantic.com/ideas/archive/2020/12/how-a-spreadsheet-could-change-the-criminal-justice-system/617370/>.

[54] Steffensmeier & Demuth 2001, *supra* note 19.

[55] Cecilia Menjívar & Cynthia Bejarano "Latino immigrants' perceptions of crime and police authorities in the United States: A case study from the Phoenix metropolitan area" (2010) 21:7 Ethn Racial Stud 120-148, online: <https://doi-org.ezproxy.lib.torontomu.ca/10.1080/0141987032000147968>.

[56] Cruz Reynoso, "Hispanics in the Criminal Justice System" in *Hispanics in the United States: An Agenda for the Twenty-first Century* (New York: Routledge, 2017); Martin G Urbina, "Language Barriers in the Wisconsin Court System: The Latino/a Experience" (2004) 2:1–2 Journal of Ethnicity in Criminal Justice 91–118, online: <http://www.tandfonline.com/doi/abs/10.1300/J222v02n01_06>.

[57] Rafail & Mahoney, *supra* note 6.

Future research should investigate the impact of other extralegal factors on time-to-exoneration. This may yield important insights into time-to-exoneration. Additionally, it may provide understanding of the interaction of factors.

VIII   Conclusion

This study examined the racial and ethnic differences in time-to-exoneration using FCT. These results are limited by their secondary nature, validity, and cross-sectional nature. Despite these limitations, this study is the first study to assess the time-to-exoneration using a theoretical perspective via survival analysis among a national sample of individuals and shows racial and ethnic disparities in exonerations do exist. This study makes a modest contribution to the literature on the racial and ethnic differences in time-to-exoneration. Moreover, there is little theoretical driven research in this area, and this study has shed some light on how FCT can help explain the racial and ethnic differences in time-to-exoneration. The results can be utilized in guiding policy and developing reform measures.