

Children's and Adults' Reasoning About Punishment's Messages

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Abstract

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Punishment is a central component of humans' psychological repertoire: the desire to punish emerges early in life and persists across cultures and development (e.g., Carlsmith et al., 2002; Hamlin et al., 2011; Henrich et al., 2010; Smith & Warneken, 2016). Although punishment is so central to the human experience, scholars across disciplines have conceptualized punishment in different ways. For instance, some scholars have conceptualized punishment as a type of behavior directed toward those who cause harm or violate social norms (e.g., Clutton-Brock & Parker, 1995; Deutchman et al., 2021) and have worked toward elucidating punishment's instrumental value (e.g., Alschuler, 2003; Delton & Krasnow, 2017; Nagin, 1998, Zimring & Hawkins, 1995). However, other scholars have conceptualized punishment as more than just a behavior: these scholars have argued that punishment is both a behavior *and* a mechanism for social communication. These scholars often describe this idea as the "expressive theory of punishment" (Feinberg, 1965; Hampton, 1992; Kahan, 1996).

Though past work has argued that punishment is communicative, few programs of research have empirically tested how laypeople interpret punishment's messages. The paucity of research examining people's understanding of punishment's messages is not a miniscule omission. Scholars writing on theories of punishment often postulate, at least implicitly, that laypeople will understand punishment in a way that is consistent with normative theory (e.g., Bregant et al., 2020; Darley & Pittman, 2003). If this postulation is misguided, it could undermine the extent to which people view punishment policy as legitimate (e.g., Nadler, 2004; Tyler, 2006).

My dissertation addresses this topic by investigating children's and adults' inferences about what punishment signals about punished individuals' identities. When thinking about identity, people often reason about the current self in tandem with past and future selves (e.g., Peetz & Wilson, 2008). By extension, people may interpret punishment's messages as communicating distinct information about different selves. I examine this possibility by investigating the inferences laypeople make about people's past, present, and future identities on the basis of punishment. Below, I describe the chapters in my dissertation, each of which consists of one manuscript within my larger program of research.

Chapter 1 (Dunlea & Heiphetz, 2021-a), a theory paper, provides a conceptual foundation for the empirical portions of the dissertation. Namely, this chapter introduces the idea that certain forms of legal punishment (incarceration) are especially well-suited to communicate morally relevant information, paying special attention to the idea that such punishment communicates negative moral information about punished individuals. Chapter 2 (Dunlea & Heiphetz, 2020) builds on Chapter 1 by leveraging experimental methods to understand how laypeople understand punishment's signals. Specifically, Chapter 2 examines children's and adults' inferences about what punishment signals about who a punished individual was in the *past*. Chapter 3 (Dunlea & Heiphetz, in press) extends the results of Chapter 2 by documenting the downstream social consequences of how people understand punishment's past-oriented messages. Specifically, Chapter 3 examines how different messages about a punished individual's past shape people's attitudes toward such individuals in the *present*. Chapter 4 (Dunlea & Heiphetz, 2021-b) builds on Chapters 2 and 3 by investigating laypeople's inferences about punishment's *future*-oriented messages, specifically probing people's views about what punishment might signal about who a punished individual might become. Finally, Chapter 5

(Dunlea et al., under revised review) addresses laypeople's inferences about punishment's future-oriented messages in a complementary way—by examining the extent to which people understand punishment as communicating messages about *intergenerational immorality*. That is, Chapter 5 asks whether people understand punishment as conveying morally relevant information about future generations of individuals related to punished individuals (i.e., children of incarcerated parents).

Together, these chapters shed light on the origins and development of people's reasoning about punishment's messages. In doing so, this dissertation integrates sub-areas of psychology (social cognition, development, moral psychology) and connects psychology with related fields (e.g., philosophy, law) to answer questions central to jurisprudential inquiry.

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Dedication

To my family.

Introduction

Punishment is deeply embedded within the fabric of society. At times, punishment can be relatively mild and occur within mundane contexts, such as when a caregiver gently scolds a child for engaging in unruly behavior. At other times, however, punishment can be relatively severe and occur within consequential contexts where people's lives hang in the balance, such as when jury members debate whether an individual charged with committing a crime should live or die. The fact that punishment occurs across diverse contexts supports the notion that punishment is a central component of humans' psychological repertoire (Fehr & Fischbacher, 2003; Henrich et al., 2006). Despite the fact that punishment is an important aspect of life, some heterogeneity exists in how scholars have conceptualized this construct.

What is Punishment?

Some scholars have conceptualized punishment as a type of behavior directed toward those who cause harm or violate social norms (e.g., Clutton-Brock & Parker, 1995; Deutchman et al., 2021). Importantly, many scholars who have conceptualized punishment in this way have focused on elucidating punishment's instrumental value. For instance, scholars have argued that punishment can deter transgressors from committing future harms (Delton & Krasnow, 2017; Nagin, 1998), incapacitate transgressors by removing them from society (e.g., via incarceration, Zimring & Hawkins, 1995), or rehabilitate transgressors through treatment (Alschuler, 2003).

While scholars generally agree that punishment can serve as a vehicle to achieve several different ends, some individuals posit that punishment has more than instrumental value. Notably, researchers at the nexus of legal studies and philosophy have argued that punishment is both a behavior and a mechanism for social communication (e.g., Feinberg, 1965; Kahan, 1996; Murphy & Hampton, 1988). These scholars often describe this idea as the *expressive theory of*

punishment. The idea that punishment is expressive is conceptually related to signaling accounts prevalent across various social science disciplines (e.g., Brown et al., in press; Jordan & Rand, 2020; Kirmani & Rao, 2000; Spring et al., 2018; Spence, 2002; Zhang & Wiersema, 2009). For instance, people living in the United States often conceptualize certain behaviors, such as handshaking, as a signal of cooperative intent (Schroeder et al., 2019). Here, the act of handshaking conveys a message (i.e., intent to cooperate) over and above the immediate consequences associated with the action itself (i.e., touching hands together). Analogously, the “punishment-as-communication” account posits that a given behavior can provide meaningful socially information about an individual, such as information their moral-valanced characteristics (e.g., Feinberg, 1965). Differently put, the idea that is shared across disciplines is that a given behavior can convey a message over and above the immediate consequences associated with the action itself.

In general, scholars within the social sciences are relatively precise when describing signaling accounts, taking great care to clearly delineate what a particular behavior might signal. Unlike in the case of signaling accounts, expressive punishment theorists have been somewhat more general when describing what types of messages punishment might communicate (Bregant et al., 2020). For instance, some scholars have argued that punishment communicates *some* type of information about community norms, rules, or values (e.g., Duff, 2011; Foucault, 1977; Markel, 2011). This lack of specificity has, in part, contributed to the lack of clear consensus among legal scholars and philosophers about what an act of punishment might express. Perhaps more importantly, relatively few programs of research have empirically investigated how laypeople might interpret punishment’s messages (for notable exceptions, see Bilz, 2016; Bregant et al., 2016, 2020). The paucity of scholarship directly examining this topic is

consequential. Scholars writing on theories of punishment sometimes speculate that laypeople will understand punishment in a way that is consistent with normative theory (i.e., what punishment *should* express or accomplish, Darley & Pittman, 2003). Importantly, when people's judgments about prescriptive punishment norms (how people should punish) do not dovetail with descriptive punishment norms (how people actually punish), people begin to judge punishment practices as unfair and illegitimate (e.g., Nadler, 2004; Tyler, 2006). Ultimately, understanding the extent to which laypeople's perspective diverge from normative punishment theory can help policymakers identify ways to augment the perspective legitimacy of legal punishment.

What Does Punishment Communicate?: Focusing on What Punishment Might Convey About the Past, Present, and Future

The work presented in this dissertation began to probe how laypeople reason about punishment by investigating children's and adults' inferences about what punishment signals about punished individuals' identities. More specifically, the current work probed how laypeople interpret punishment's messages regarding who punished people were in the past, what types of responses they should elicit in the present, and what types of people they and their children will be in the future. While punishment theorists often postulate—at least implicitly—that punishment communicates information about the present (e.g., about a punished person's current attributes), it is possible that people understand punishment as also communicating past- and future-oriented messages about identity. This possibility stems from the notion that laypeople's judgments about the self and identity are multifaceted. When thinking about their own and others' identities, people often reason about the current self in tandem with past and, separately, future selves (e.g., Fivish & Nelson, 2006; Hart et al., 1993; Higgins et al., 1985; Hershfield & Bartels, 2018; Markus & Nurius, 1986; Peetz & Wilson, 2008; Vignoles et al., 2008).

Importantly, people sometimes agree that certain aspects of an individual's current identity may not reflect who that individual was in the past (e.g., Biernacki, 1986; Mathieson & Stam, 1995; Libby & Eibach, 2009) or who that individual will be in the future (e.g., McAdams, 2013; Oysterman et al., 2006; Pronin & Ross, 2006). Because people conceptualize the self as multifaceted and sometimes differentiate between past versus future selves, people may interpret punishment's messages as communicating distinct types of information about past, present, and future identities. The current work addressed this possibility by probing children's and adults' views about what one especially severe form of punishment (incarceration) communicates about who a punished individual was in the past (Chapter 2) and, separately, who they will be in time yet to come (Chapters 4-5).

In addition to examining how children and adults' reason about punishment's messages, the current work chronicled the current consequences of how people interpret punishment's messages (Chapter 3). A robust body of scholarship has worked toward chronicling the extent to which punished individuals (e.g., Feingold, 2021; Hirschfield & Piquero, 2010; Ott & McTier, 2020; Richardson & Goff, 2013)—as well as their families (e.g., Braman, 2004; Phillips & Gates, 2011)—experience stigma and discrimination in various consequential domains of life. Although this literature has worked toward illuminating the experiences of individuals who have been implicated in the criminal legal system, relatively less work has examined the social psychological processes that underlie *why* such individuals experience this negativity. Importantly, some scholars have theorized that such negativity may arise, in part, due to how people understand punishment's messages (e.g., that punishment signals negative information about punished individuals' moral characteristics, Kleinfeld, 2016; Yankah, 2004). However, relatively few scholars have focused on examining this topic empirically. The present

scholarship worked toward addressing this gap in the literature. Specifically, Chapter 3 addressed this topic by probing how laypeople’s understanding of punishment’s past-oriented messages shape their responses to punished individuals in the present.

Why Study Punishment in the Context of the Criminal Legal System?

The current work experimentally investigated how people understand punishment’s messages by focusing on children’s and adults’ reasoning about one especially harsh form of legal punishment—namely, incarceration. The current project used the criminal legal system as an example domain in which to study laypeople’s understanding of punishment’s messages for two main reasons. First, expressive punishment theorists often conceptualize punishment as severe. For example, some scholars have likened punishment with “hard treatment” (Feinberg, 1965, p. 397) and characterized it as requiring “consequences normally considered unpleasant” (Hart, 1959, p. 4), including “material deprivations (such as the loss of liberty or money) which are painful or burdensome” (Duff, 1996, p. 34). Oftentimes, severe forms of punishment are limited to taking place within formal carceral systems (e.g., prisons, jails). Because severe punishment in the United States is typically restricted to formal systems such as incarceration, scholarship focusing on the expressive function of punishment is typically situated within the criminal legal system context. To directly contribute to the literature on punishment-as-communication, the present scholarship also focused on studying punishment within the carceral context.

Second, harsh forms of legal punishment is commonplace, especially within the context of the United States. The United States has the highest rate of incarceration in the world (Sawyer & Wagner, 2020). Recent estimates approximate that over 600,000 people per year enter prison gates (Bronson & Carson, 2019). Perhaps more staggeringly, recent estimates further suggest

that there are approximately 10.6 million jail admissions per year (Zeng, 2018). Beyond those who directly experience legal punishment, incarceration affects many people who have never been incarcerated themselves (e.g., children, spouses). Indeed, recent estimates suggest that nearly 50% of all people living in the United States have ever had a family member incarcerated and that this percentage is even higher in Black, Hispanic, and Native communities (Enns et al., 2019). Although incarceration is relatively common for people living in the United States, this experience is understudied within psychological science. By probing people's inferences about incarceration, the current work thus advanced the scientific understanding of an understudied, yet relatively common, component of the human experience within the United States.

Why Investigate How Children and Adults Understand Punishment's Messages?

As previously mentioned, the current work focused on how both children and adults understand punishment's messages. Incorporating methods from developmental psychology to investigate laypeople's reasoning about punishment's messages is important for three main reasons. First, doing so helped clarify the extent to which certain features of adults' "end-state" punishment concepts are present. In addressing this topic, the current work contributed to a larger body of scholarship examining the extent to which early childhood cognition shapes and constrains adult sociopolitical thought. Indeed, other programs of research argue that some early-emerging psychological processes remain relatively stable over time and, thus, guide cognition and behavior across the lifespan (e.g., Block & Block, 2006; Heck et al., 2021; Hussak & Cimpian, 2018; Kushnir & Chernyak, 2010). The present work built on this past scholarship to examine the extent to which a similar pattern would emerge within the domain of punishment concepts.

Second, testing both children and adults within the same paradigm was practical. As previously mentioned, some scholars argue that punishment's messages may shape the experiences of punished individuals, including those who have come in contact with the criminal legal system (e.g., Kleinfeld, 2016; Yankah, 2004). Given that learning during childhood often has enduring consequences (e.g., Kushnir & Chernyak, 2010), messages communicating negative information about punished individuals may contribute to the development of stigma and discrimination toward people who have been implicated in the criminal legal system. Understanding when in development people begin to interpret punishment's messages as communicating negative information about punished individuals may help practitioners develop strategies aimed at reducing such negativity.

Overview of the Current Research

The current work probed children's and adults' reasoning about punishment's signals. Chapter 1 offers a theoretical perspective arguing that punishment may serve as a meaningful communication device. Chapter 2 builds on Chapter 1 by examines children's and adults' inferences about what punishment signals about who a punished individual was in the *past*. Chapter 3 investigates the downstream social ramifications of how people might interpret punishment's past oriented messages. Specifically, Chapter 3 addresses this topic by examining how different messages about a punished individual's past shape laypeople's *current* attitudinal responses toward such individuals. Finally, Chapters 4 and 5 investigates laypeople's inferences about punishment's *future*-oriented messages. Chapter 4 addresses this topic by probing the extent to which children and adults understand punishment as signaling moral change within a punished individual. Chapter 5 builds on Chapter 4 by investigating laypeople's inferences about punishment's future-oriented messages in a complementary way—by examining the extent to

which people understand punishment as communicating messages about *intergenerational* immorality. That is, Chapter 5 asks whether people understand punishment as conveying morally relevant information about future generations related to punished individuals (i.e., children of incarcerated parents). Together, these chapters shed light on the origins and development of people's reasoning about punishment's messages. In doing so, this dissertation integrates sub-areas of psychology (social cognition, development, moral psychology) and connects psychology with related fields (e.g., philosophy, law) to answer questions central to jurisprudential inquiry.

Introduction to Chapter 1

What is punishment? At face value, punishment is a behavior that can work toward accomplishing an array of instrumental ends (e.g., Clutton-Brock & Parker, 1995). While scholars generally agree that punishment can attempt to accomplish various instrumental ends (e.g., Alschuler, 2003; Nagin, 1998; Zimring & Hawkins, 1995), some scholars—typically those working in the traditions of law or philosophy—often posit that punishment has more than mere instrumental value. These scholars often conceptualize punishment as being “expressive”—as both an action and a mechanism for social communication (e.g., Feinberg, 1965; Kahan, 1996). Chapter 1 integrates this work with empirical findings from psychology to ultimately argue that certain forms of legal punishment (i.e., incarceration) are especially well-suited to communicate morally relevant information. In doing so, Chapter 1 acknowledges that punishment may communicate messages that have both positive and negative social ramifications. However, Chapter 1 pays special attention to the argument that punishment’s messages often work toward impeding justice (i.e., by communicating negatively valenced information about who a punished individual was in the past). Chapter 1 thus provides a theoretical grounding for Chapters 2-5, all of which focus on leveraging empirical methods to better understand how laypeople understand punishment’s messages.

Chapter 1:
**Moral Psychology as a Necessary Bridge Between Social Cognition
and Law**

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Abstract

Coordinating competing interests can be difficult. Because law regulates human behavior, it is a candidate mechanism for creating coordination in the face of societal disagreement. We argue that findings from moral psychology are necessary to understand why law can effectively resolve co-occurring conflicts related to punishment and group membership. First, we discuss heterogeneity in punitive thought, focusing on punishment within the United States legal system. Though the law exerts a weak influence on punitive ideologies before punishment occurs, we argue that it effectively coordinates perceptions of individuals who have already been punished. Next, we discuss intergroup conflict, which often co-occurs with disagreements related to punishment and represents a related domain where coordination can be difficult to achieve. Here, we underscore how insights from moral psychology can promote equality via the law. These examples demonstrate how contributions from moral psychology are necessary to understand the connection between social cognition and law.

Keywords: intergroup bias; law; moral cognition; prejudice; punishment

Moral Psychology as a Necessary Bridge Between Social Cognition and Law

On January 1st, 1863, Abraham Lincoln proclaimed freedom for “all persons held as slaves within any State or designated part of a State, the people whereof shall then be in rebellion against the United States.” Because this proclamation lacked legal standing in the rebellious states, legal freedom did not come until the ratification of the thirteenth amendment in April 1864. Even then, many fought the establishment of provisions to punish members of one group for attempting to own members of another. One version of the thirteenth amendment, proposed by Senator Charles Sumner, read that “all persons are equal before the law, so that no person can hold another as a slave”—but this was too radical for most other members of Congress. The final version made no mention of equality under the law but did state that involuntary servitude was legal as punishment for a crime. Several states from the former confederacy ratified this version only after issuing notices that their ratification did not grant the federal government the right to create legislation regarding the standing of formerly enslaved people (i.e., according to these states, the federal government could not punish Whites for attempting to continue slavery, Tsesis, 2004). More than 150 years later, the full dream embodied in Sumner’s proposed amendment remains to be fulfilled, but at least most United States residents no longer voice open support for human bondage.

The controversy around appropriate consequences for people who try to own their fellow human beings illustrates a broader theme concerning moral cognition. Namely, punishment often elicits controversy, particularly in contexts where the people who receive harm and the people who perpetuate harm belong to different social groups. People often disagree about whether such punishment should exist at all and, if so, who should receive the punishment and how severe it

should be. Such disagreement is often demarcated by group membership. With regard to civil rights, for instance, White support lags far behind that of Black people (McRae, 2018; Sokol, 2008).

Such disagreements can present a coordination problem. Here, we join other scholars in conceptualizing a “coordination problem” as the kind of issue that arises when actors experience conflict over what outcome is most desirable (McAdams & Nadler, 2005, 2008). Such disputes are commonplace in everyday life. For example, two individuals may wish to have a relaxing afternoon in the same public park; however, one of them wants to relax by quietly reading a book, while the other wants to play loud rock-and-roll music for all to hear. Or, perhaps more prototypically, two people may desire to introduce policies for penal reform. While one wants to increase the length of time people spend in prisons, the other wants to abolish prisons altogether. In other words, under this conceptualization of a “coordination problem,” the problem arises when people have competing interests. This differs somewhat from a situation in which independent actors make choices that directly impact one another and have entirely compatible interests, such as separately deciding where to meet the others for dinner.

If people disagree about appropriate punishment, how can United States society as a whole determine what should happen to people who transgress? Put slightly differently, how can United States society *coordinate* views about people who transgress? Several scholars have proposed that one function of the law is to facilitate coordination and cooperation among individuals even when they disagree (McAdams, 2015; McAdams & Nadler, 2005; 2008; Nadler, 2017). We build on this model by arguing that the law (here, we focus particularly on United States law) is able to do so because it has the power to communicate moral norms, which can, in turn, coordinate moral cognition and behavior.

The central argument of this paper is as follows: *Because* the law can shape people’s moral understanding and behavior, it is equipped to resolve coordination issues that are embedded in systems of social cognition. In this way, law can be likened to an arm and its moral influence can be likened to muscle. Without muscle, an arm is just a fleshy appendage, limp and weak. Analogously, without the ability to communicate moral messages and shape moral norms, the law would not have enough strength to coordinate human cognition or behavior; it would have no muscle. Thus, findings from moral psychology—the science of people’s morally relevant cognition, behavior, and affect—are necessary in order to understand how this coordination occurs.

For two main reasons, we focus on coordination in the contexts of punishment and intergroup relations. First, these areas often elicit controversy that the law must navigate. Second, these areas underscore the idea that coordination can result in both negative and positive consequences. Within the domain of punishment, coordination *impedes* justice by propagating the view that people who have received legal punishment are irredeemably bad people. This is an example of “negative coordination.” However, within the domain of intergroup relations, coordination *promotes* justice by establishing greater equality among groups. This is an example of “positive coordination.” In both types of cases, understanding moral cognition and behavior is necessary in order to understand why the law is able to coordinate at all, whether justly or unjustly. Thus, the sections below discuss how scientific knowledge of morality is a necessary bridge connecting social cognition (e.g., coordination among different people’s judgments) and law.

A Case of “Negative Coordination”: Law Coordinates People’s Views About Punishment

We begin by reviewing evidence suggesting that views about punishment can be heterogeneous and clarifying how such heterogeneity can lead to disagreement. Our central claim here is that the law is particularly well suited to help coordinate ideas about punishment because it can communicate who deserves moral condemnation. In turn, these moral messages effectively coordinate people's responses to punishment, including their views toward people who have already received punishment. While coordinating views about punishment helps alleviate disagreement (which may be viewed as an ostensibly positive outcome), coordination within this domain has profoundly negative consequences for those whom the law seeks to punish. In this way, coordination within the domain of punishment has net negative consequences because it stymies justice.

Heterogeneity In Punitive Ideology As An Example of Non-Coordination

The desire to punish emerges early in development and persists across development (e.g., Alicke, 1992; Bregant, Wellbery, & Shaw, 2019; Cushman, Sheketoff, Wharton, & Carey, 2013; Hamlin, Wynn, Bloom, & Mahajan, 2011; Heiphetz & Young, 2014; Kurzban, DeScioli, & O'Brien, 2007; Nadler, 2012; Nadler & McDonnell, 2011; Vaish, Missana, & Tomasello, 2011; Yucel & Vaish, 2018; Yudkin, Van Bavel, & Rhodes, 2019). Although nearly all humans make judgments about punishment, some views may vary across different people and groups of people. Of particular relevance to the legal system, Black and White individuals may hold different views regarding appropriate punishment for legal violations (Bobo & Johnson, 2004; Forman, 2017; Weaver, 2007). Such disagreements may emerge in part because the United States legal system metes out punishment inconsistently and disproportionately punishes people who are marginalized on the basis of racial group membership (e.g., Alexander, 2012; Forman, 2017; Harcourt, 2007). Compared to their White peers, Black and Latinx people are more likely

to experience police surveillance (e.g., Harcourt, 2007) and police use of force (e.g., Trinkner, Kerrison, & Goff, 2019; Weitzer, 2015). Of course, disagreements about punishment are not solely demarcated by racial group membership and may also emerge between other social groups (e.g., groups identifying with different political parties).

Such non-coordination regarding views of punishment can be detrimental. According to models of procedural justice, punishments delivered by the legal system are perceived as more legitimate when they are perceived as fair (Tyler & Huo, 2002). If a person's likelihood of being sentenced to particular punishments depends on who is deciding which punishment to deliver, rather than depending solely on the transgression that was committed, the system that delivers these punishments can be perceived as capricious and, therefore, unfair. When people view punishment as unfair, they may be less likely to follow the norms that the legal system tries to establish (Tyler, 2006). In other words, non-coordination regarding views of punishment may predict non-coordination regarding legally relevant behaviors such as following the law, an ostensibly undesirable outcome. Though non-coordination in and of itself may be undesirable for those who seek to mete out punishment, coordination within this domain is extraordinarily costly for those who receive punishment. We elaborate on the net negative consequences of coordination within the domain of punishment below.

By integrating research demonstrating that (a) ideas about punishment vary across people and (b) punishment must be coordinated in order to be beneficial, it may seem that social cognition (i.e., processes that create different judgments regarding punishment) creates situations ripe for failure. Indeed, such situations can highlight the importance of coordination, as the United States legal system could be perceived as more legitimate—and could potentially regulate human behavior even more effectively than in currently does—if views regarding who deserves

punishment and what type of punishment they should receive were better coordinated (Tyler, 2006; Tyler & Huo, 2002). Below, we argue that—despite our social cognition—coordination within the legal domain does, indeed, occur. More specifically, we argue that such coordination comes about after legal punishment is delivered and has negative consequences for punished individuals.

Coordination in The Domain of Punishment: The Law Coordinates The View That Punished Individuals Are Irredeemably Immoral

Though the law may not strongly coordinate punitive ideologies before punishment decisions are made, stronger coordination emerges after punishment occurs. Below, we review evidence that the law can signal information about who deserves moral condemnation and punishment. We then draw on past work showing that laws can communicate information about consensus to argue that the moral messages communicated by laws coordinate people's views about punishment (e.g., how to view people who have received punishment). Thus, within the domain of punishment, the coordinating power of current laws within the United States context lies not in shaping views concerning what type of punishment people *should* receive, but in coordinating people's views of those who have already received punishment.

In the United States, laws coordinate public perceptions in part by communicating negative information about those who have received punishment via the legal system (e.g., Alexander, 2012; Dunlea & Heiphetz, 2020; Kleinfeld, 2016; Yankah, 2004; also see Bilz, 2016; Bregant, Shaw, & Kinzler, 2016; Ho, Cushman, Littman, & Austerweil, 2019 for evidence that punishment is communicative). Consider the widely implemented “three strikes” laws, which stipulate that a third felony conviction warrants a lengthy sentence (Meese, 1994). Such laws, among others, communicate that people who have committed crimes are not just people who

have done bad things but are themselves irredeemably bad (Dunlea & Heiphetz, 2020; Kleinfeld, 2016; Yankah, 2004).

Humans are especially attentive to messages with morally relevant content (Brady, Gantman, & Van Bavel, 2020). People attend to messages communicated by the law (e.g., Bilz, 2016) and perceive information conveyed by the law to reflect predominant social norms (McAdams, 2015; Nadler, 2017; Tankard & Paluck, 2016, 2017). To illustrate this point, consider a hypothetical new law that restricts the rights of formerly incarcerated individuals. Given its content, this law may communicate something negative about incarcerated people (e.g., that they deserve punishment but not freedom, Yankah, 2004). Further, this law can communicate that, in general, other community members endorse this view (e.g., a majority of others also agree that incarcerated people do not deserve freedom, Tankard & Paluck, 2017). If a particular community member already endorses such a position, this new law may lead that individual to think that others favor it as well, which could subsequently reinforce the strength of this pre-existing view (Nadler, 2017). Even if a particular individual does not already endorse such a view, perceptions of normativity may instantiate change. Indeed, converging lines of evidence from social cognition and behavioral economics suggest that people often change their behavioral intentions (e.g., Gerber & Rogers, 2009) as well as their actual behaviors (e.g., Bicchieri & Mercier, 2014; Cialdini, Reno, & Kallgren, 1990; Fehr & Gächter, 2000; Krupka & Weber, 2013) to conform to norms they perceive to be commonly held. But why might changes in descriptive norms—i.e., perceptions of how other people think and behave—lead people to change their behaviors? Insights from moral psychology are needed to help answer this question.

Some theoretical proposals suggest that people incorporate information about both descriptive and moral norms when making judgments (e.g., when evaluating what is normal,

Bear & Knobe, 2017; Wysocki, 2020) and that, in turn, such judgments influence may influence people's behaviors (e.g., Cialdini et al., 1990). This work suggests that people distinctly represent descriptive and moral norms when making certain types of judgments (e.g., normality). However, other programs of research find that the perceived boundary between descriptive and moral norms may be blurry at times. This research suggests that people may glean moral norms (how people *should* behave) from descriptive norms (how people *do* behave, Goldring & Heiphetz, 2020; Lindström, Jangard, Selbing, & Olsson, 2018; Roberts, Guo, Ho, & Gelman, 2018). That is, people infer that what is common is also moral. For example, when people perceive that a particular view (e.g., incarcerated people are intrinsically bad and should be punished) is becoming even more normative than it currently is, they may believe that holding such a view is morally "good" or "right." People are highly motivated to be seen as moral (for a review, see Ellemers, van der Toorn, Paunov, & van Leeuwen, 2019). Therefore, they may be especially willing to behave concordantly with perceived descriptive norms (e.g., supporting punitive outcomes, Son, Bhandari, & FeldmanHall, 2019; Tankard & Paluck, 2016).

Thus, our proposal is that laws communicate moral messages (e.g., about the moral character of incarcerated people) and that such messages tell people what others in the community collectively think about a given topic (e.g., punished individuals). That is, such messages announce descriptive norms. People sometimes infer moral norms from descriptive norms; thus, the perceived normativity of these beliefs can influence the extent to which people view that such beliefs are morally good. In turn, people's desire to be seen as moral may drive them to behave in accordance with messages communicated by the law; this desire to be seen as moral may ultimately underlie coordination. In other words, messages communicated by the law are necessary for coordinating people's views of individuals who have received punishment.

Approaches To Reducing Negativity Toward Punished Individuals: Insights From Moral Psychology

As previously mentioned, coordination can be desirable for punishers because it makes their actions appear legitimate (e.g., Tyler, 2006; Tyler & Huo, 2002). However, for those on the receiving end of punishment, such coordination can be undesirable given that the law can communicate that punished individuals are immoral and can never repay their debt to society—a view that is particularly common in the United States (Alexander, 2012; Dunlea & Heiphetz, 2020; Kleinfeld, 2016; Yankah, 2004). As such, punished individuals may wonder how such negativity can be reduced, and research within moral psychology has begun to address this question.

In one line of work (Heiphetz, 2019), adults learned about two different individuals who were described as “bad.” Consistent with the messages communicated via the law, one individual’s badness was attributed to internal, immutable causes. The other individual’s badness was attributed to social factors. After learning about each person, participants divided five resources between them. Adults allocated *fewer* resources than would be expected by chance to the individual who was described as inherently bad and, thus, allocated *more* resources to the individual whose badness was attributed to social factors. This result suggests that messages inconsistent with those communicated by the United States legal system (i.e., portraying incarcerated people as redeemable rather than inherently bad) may, at least momentarily, increase positivity toward punished individuals.

Related work more directly examined the extent to which messages can reduce negativity toward people who have had contact with the United States legal system (Dunlea & Heiphetz, 2019). Here, children reported extremely negative attitudes toward people whose incarceration

was attributed to internal badness. These attitudes improved slightly when the incarceration was attributed to behavioral factors (e.g., doing something wrong) and improved somewhat more when the incarceration was attributed to societal inequality (e.g., poverty). In a follow-up study, children reported more positive attitudes toward a person whose incarceration was attributed to internal plus societal reasons (e.g., being a bad person and growing up poor) than toward a person whose incarceration was attributed to an internal reason alone or an internal reason plus a behavioral reason (e.g., being a bad person and doing something wrong). This result suggests that providing information about societal inequalities that are associated with incarceration can reduce the negativity associated with the types of messages communicated by United States law (i.e., that incarcerated people are inherently bad).

This work is critical in understanding how society can leverage moral psychology to benefit people who have had contact with the legal system. However, interventions such as those suggested above (i.e., teaching children and adults about the societal inequalities that underlie mass incarceration) are aimed at individuals, not society at large. To affect societal representations of punishment, such interventions must be scaled up to the level of the law. Doing so is no small task. However, incremental changes in United States criminal law can begin to change perspectives on punishment.

Approaches To Reducing Negativity Toward Punished Individuals: Insights From Law

As a first step, states can work to eliminate “three strikes” laws. These laws often mandate a life sentence after a third felony conviction, licensing the inference that people who have committed multiple crimes can never improve (e.g., Kleinfeld, 2016; Yankah, 2004). Lawmakers in the United States can curb such inferences by borrowing from European criminal

law. For instance, in Germany, sentencing guidelines specify punishment “frames”—upper and lower sentence limits—for given offences. Under this framework, a person found guilty of theft cannot be imprisoned for more than five years, regardless of prior criminal history. Unlike in the United States, where perpetual punishment for recidivists connotes a permanently “ruined self,” punishment in Europe connotes that what people do in the present need not determine who they will be in the future (Kleinfeld, 2016). If laws in the United States change to connote less negativity towards people who have had contact with the legal system (i.e., by signaling that such individuals are *not* intrinsically immoral, as do laws in some European countries), people living in the United States may change how they think about such individuals. Change at the level of the law is crucial because, as previously mentioned, the law has unique coordinating power and is well positioned to reduce disagreement with the moral messages it communicates (e.g., McAdams, 2015). Of course, the question of whether repealing extant statutes within United States criminal law will help attenuate negativity toward currently and formerly incarcerated individuals is empirical in nature. Future work can directly test this possibility.

A Case of “Positive Coordination”: Law Coordinates People’s Views About Prejudice

The section above provided evidence that the law is especially well positioned to coordinate human behavior in the domain of punishment, although such coordination can have unjust consequences. As mentioned in the Introduction, disputes (i.e., bouts of non-coordination) regarding punishment often track situations where prejudice and other forms of intergroup negativity are salient. In other words, non-coordination about punitive ideology often occurs in parallel to non-coordination about intergroup attitudes. This observation suggests that human behavior and cognition are also difficult to coordinate in the domain of intergroup relations.

Psychologists have long been interested in reducing negativity stemming from intergroup conflict and disagreement (e.g., Cohen & Insko, 2008). Nevertheless, the field has experienced limited success, given that prejudice and discrimination continue to be some of humanity's greatest challenges. Here, we argue that law is particularly well suited to help attenuate intergroup conflict because it can signal that such behavior is immoral. That is, we argue that the law can coordinate people's views in a way that promotes positive change. In this way, findings from moral psychology, such as those regarding the influence of moral norms, serve as a necessary link between social cognition (e.g., people's representations of members of different groups) and law (e.g., anti-discrimination efforts). Because the law alters social cognition via morality, by communicating that some ways of responding to other people are immoral, understanding moral psychology is necessary in order to fully understand the relation between social cognition and law.

Negative Intergroup Relations As An Example of Non-Coordination

Within the first three months of life, infants already attend to the race and gender of different faces (Quinn, Lee, & Pascalis, 2019). Children report more positive evaluations of members of their own group and the socially dominant group than of out-group members and members of stigmatized groups (Bigler, Jones, & Lobliner, 1997; Dunham, Baron, & Carey, 2011; Heiphetz & Young, 2019; McGlothlin & Killen, 2010). Adults automatically encode categories such as race and gender—a rapid process that often occurs without consciousness awareness or control (Fiske & Neuberg, 1990). They may have learned that it is not acceptable to say out loud that they prefer Whites to Blacks, but evidence of stereotyping and prejudice emerges on implicit measures (Kang et al., 2011; Nosek, 2007). These biases manifest in part as a lack of pro-social behavior toward out-groups. In many circumstances, children and adults

preferentially share resources with in-group members (Duclos & Barasch, 2014; Dunham et al., 2011; McGuire, Rizzo, Killen, & Rutland, 2018) and demonstrate more willingness to help in-group versus out-group members (Gaertner, Dovidio, & Johnson, 1982; Levine, Prosser, Evans, & Reicher, 2005; Sierksma, 2018). Thus, research in social cognition suggests that the tendency to hold differential views of in-group and out-group members emerges early in life and is tenacious throughout development. In other words, people's views regarding specific social groups are not coordinated with one another, as members of different social groups favor members of their own group.

Notably, bias against members of stigmatized groups occurs in a range of consequential settings, including the United States legal system. One legal process that has received a considerable amount of attention within psychology is jury selection (e.g., Norton, Sommers, & Brauner, 2007; Sommers & Norton, 2007, 2008). The sixth amendment guarantees the right to a trial with a fair, impartial jury. Ostensibly, one way to ensure this outcome is through peremptory challenges, the process in which an attorney can object to a proposed juror. Support for peremptory challenges rests on the assumption that attorneys can detect biased jurors and that, upon removing such individuals, the promise made by the sixth amendment will be upheld. Nevertheless, empirical evidence does not support the idea that jury selection decisions are impartial. For example, in one study (Sommers & Norton, 2007), participants were more likely to challenge Black, versus White, prospective jurors. Strikingly, this bias was stronger among trial attorneys than college students or law students.

Consistent with the idea discussed in the Introduction that perceptions regarding punishment and intergroup interactions are often intertwined, the negative consequences of racial bias also accrue to those whom the law seeks to punish. Black people endure worse outcomes

than White people at all stages of legal involvement: they are more likely to experience arrest and negative interactions with police (Brunson, 2007; Stevens & Morash, 2015), face bias from lawyers and jurors (Mitchell, Haw, Pfeifer, & Meissner, 2005; Richardson & Goff, 2013; Sommers & Ellsworth, 2000), and spend time in jail and prison (Alexander, 2012). Moreover, individuals with stereotypically Black features are more likely to receive the death penalty than individuals who look less stereotypically Black (Eberhardt, Davies, Purdie-Vaughns, & Johnson, 2006). Disadvantage also accrues on the basis of gender (Rathbone, 2007) and socio-economic status (Eubanks, 2018), among other group memberships. Thus, non-coordination on the basis of group membership can play an important role in the United States legal system.

Coordination in The Domain of Intergroup Relations: The Law Coordinates The View That Prejudice is Immoral

Although prejudice and discrimination are pervasive within the United States legal system, research from moral psychology offers unique insight into how the law can work to coordinate people's views regarding the immorality of prejudice, ultimately reducing such negative outcomes. In other words, moral psychology clarifies how social cognition, including that of legal actors, can be altered to better achieve the law's anti-discrimination goals.

People sometimes turn to the law to tell them what is (im)moral (e.g., Berkowitz & Walker, 1967; Tyler, 2006). Thus, one way to reduce bias is to implement and enforce laws that communicate that bias is morally wrong. In one study demonstrating the influence of law on moral cognition (Berkowitz & Walker, 1967), adults rated the immorality of several behaviors. Next, participants learned that some behaviors were legal whereas others were illegal. Crucially, participants viewed behaviors as more immoral after learning about their illegality. The results of this study provide initial evidence that the law can coordinate people's views about the moral

valence of particular behaviors. Further supporting the idea that the law can be a useful tool by which to reduce bias, more recent work has shown that anti-gay bias in a given state decreased after that state legalized same-sex marriage (Ofosu, Chambers, Chen, & Hehman, 2019). Put slightly differently, the results of this work suggest that the law can coordinate people's views in a way that decreases bias. Taken together, these studies suggest that implementing and enforcing anti-discrimination laws can reduce the likelihood that people will act in a biased manner by increasing public support for the view that bias and other instances of intergroup negativity are immoral.

Studies of moral cognition offer additional insights into how passing and enforcing a specific law can coordinate views pertinent to intergroup relations and ultimately affect positive social change. In a line of work demonstrating that legal changes may shift perceived norms, Tankard and Paluck (2017) manipulated participants' beliefs about the likelihood of the then-upcoming Supreme Court ruling regarding same-sex marriage (*Obergefell v. Hodges*, 2015). Half of the participants read that the Supreme Court was likely to rule in favor of fully legalizing same-sex marriage, whereas the other half read that such an outcome was unlikely. Participants in the favorable ruling condition were more likely than those in the unfavorable ruling condition to report that Americans collectively support same-sex marriage. A longitudinal study further showed that the actual *Obergefell v. Hodges* ruling in favor of same-sex marriage was associated with an increase in perceived norms supporting same-sex marriage. This work therefore suggests that anti-discrimination laws (e.g., those ensuring fundamental human rights to same-sex couples) can effectively coordinate people's views about norms (e.g., support for same-sex marriage).

Research from moral psychology is necessary to understand why changes in law alter social cognition. As previously discussed, people often infer that what *is* normative also *should be* normative, i.e., that what is common is moral (e.g., Lindström et al., 2018; Roberts et al., 2018). Because people are motivated to be seen as moral (e.g., Ellemers et al., 2019), they may be especially willing to behave concordantly with perceived descriptive norms (e.g., refraining from discriminating against same-sex couples, Tankard & Paluck, 2016), ostensibly because doing so puts them in the moral majority. Understanding this aspect of moral psychology clarifies how coordinating views about perceived norms within the legal system can alter social cognition (e.g., attenuating negativity toward stigmatized groups).

Additional Approaches To Reducing Prejudice: Insights From Moral Psychology

Moral psychology offers additional insights for increasing moral behavior broadly construed, which are relevant to prejudice reduction efforts if one conceives of prejudice as immoral. One such line of work highlights the importance of linking behavior to identity. This can be done subtly, using noun labels. The logic here is that using a noun connects a particular behavior to who a person is, whereas using other linguistic forms can make the behavior appear more transient (Markman, 1989). In line with this reasoning, adults are less likely to cheat when others ask them to not “be a cheater” rather than when others ask them to “not cheat” (Bryan, Adams, & Monin, 2013). Similarly, children are more likely to help others when they hear about being “a helper” than when they are asked “to help” (Bryan, Master, & Walton, 2014), and participants are less likely to litter when they are labeled as “litter-conscious” than when they are asked not to litter (Miller, Brickman, & Bolen, 1975). Importantly, this latter effect remained even seven weeks after the initial manipulation. This finding highlights the potential for noun labeling interventions to effectively coordinate people’s behavior (a) outside of a lab setting and

(b) in a way that promotes positive outcomes over an extended period of time. Applying this logic to the legal context, jury instructions containing phrases like “remember to be an egalitarian person” or “do not be a bigot” could help to reduce juror bias.

A separate line of work in moral psychology highlights the role that moral realism plays in pro-social action. Moral realism refers to the notion that moral beliefs can be objectively true or false, akin to factual beliefs, and that if two people disagree about a moral view, only one person can be correct (Heiphetz & Young, 2017). Encouraging people to adopt a realist perspective increases charitable donations (Young & Durwin, 2013) and reduces cheating (Rai & Holyoak, 2013). In the legal context, it may be beneficial to establish coordination (i.e., public agreement) around the idea that prejudice is morally wrong while also leading people to adopt a realist mindset. For instance, using the methodology from Young and Durwin’s (2013) study, jurors could be asked whether they agree that “some things are just morally right or wrong, good or bad, wherever you happen to be from in the world” and then, immediately afterwards, whether they think that prejudice is wrong. Group dynamics can lead individual jurors to conform to the opinion expressed by the majority during jury deliberation (e.g., Son et al., 2019), and there is some evidence that group discussion can exacerbate bias in the jury deliberation process (e.g., Hulbert, Parks, Chen, Nam, & Davis, 1999). As such, it is possible that the prejudiced opinion of one juror may “spread” to other jurors during the jury deliberation process. However, completing the moral realism intervention described here as part of the jury instruction procedure, before deliberations begin, may mitigate against this effect. In other words, jurors who have been led to view prejudice as objectively wrong may be more likely to behave pro-socially toward the defendant and to resist the “spread” of bias against that defendant.

Evidence from moral psychology suggests that individual-level interventions (e.g., linking desirable behaviors to identity, encouraging people to adopt realist mindsets when making legal decisions) may effectively coordinate the view that bias and discrimination are immoral, thus reducing such negative outcomes. However, for completeness, we also review evidence from a smaller set of studies suggesting potential caveats to these interventions. For instance, some studies suggest that helping may license negative inferences about members of the group that received help, as children and adults sometimes perceive individuals who receive help as less competent than individuals who do not (Nadler & Chernyak-Hai, 2014; Sierksma & Shutts, in press). Relatedly, statements expressing equality (e.g., “naturalized citizens are just as American as natural born citizens”) can inadvertently perpetuate harmful stereotypes (e.g., people may infer that natural born citizens are indeed “more American” than naturalized citizens, Chestnut & Markman, 2018). Therefore, the identity-linked interventions recommended above may be most effective if they focus jurors’ attention on themselves rather than on defendants. For instance, asking jurors to “be an egalitarian person,” as suggested above, may be more effective than encouraging jurors to help defendants by rendering an egalitarian verdict or reminding them that stereotypes about defendants are inaccurate.

Important questions may also arise about the external validity of the types of interventions proposed here. Bias-reduction interventions sometimes have short-lasting effects, some lasting less than a day (e.g., Lai et al., 2016). The positive outcomes brought about by the aforementioned interventions may follow a similar pattern (though see Miller et al., 1975, for a notable exception). To ensure efficacy, one possibility is to administer the intervention immediately before a crucial decision point in the legal process (e.g., immediately before jurors begin deliberations or render a verdict; Carter, Onyeador, & Lewis, in press). Moreover, the

extent to which the effects demonstrated by interventions conducted in tightly controlled experimental settings replicate in other contexts is unclear. Some effects of identity-linked language are relatively small (e.g., Bryan et al., 2013). Therefore, it is possible that interventions—at least those using noun labels to reduce immoral behavior—may exert a weaker effect on behavior in everyday contexts where situations are less tightly controlled. Nevertheless, some evidence points to the possible efficaciousness of such interventions. For instance, reminding United States citizens to “be a voter” increased actual voter turnout in two statewide elections (Bryan, Walton, Rogers, & Dweck, 2011), demonstrating the efficacy of identity-linked language outside the lab. Additional work remains to be done to clarify how linking morally relevant behavior to personal identity might alter behavior outside of a lab context, including within the legal system.

Additional Approaches To Reducing Prejudice: Insights From Law

The individual-level interventions proposed above form only one component of an effective strategy to promote equality before the law. Many issues of discrimination are structural in nature, and individual-level interventions are not sufficient to eradicate them. The most effective solutions to societal problems occur at the societal level. One such solution is for the legal system to become more astute regarding which behaviors it criminalizes and how it enforces its statutes. For example, removing federal criminal penalties for marijuana possession would reduce the need to fight juror discrimination in those cases, as people found in possession of marijuana would no longer be tried in courts. Such an approach could be particularly helpful in reducing group-based bias in the legal system, as Black and Latinx people are currently more likely to become involved in this system for drug possession despite using drugs at rates similar to those of Whites (Alexander, 2012; Forman, 2017). As another example, and related to the

discussion above regarding the possible influence of anti-discrimination laws on reductions in discriminatory behavior, the legal system could add and enforce additional penalties against group-based discrimination. Such steps could include reinstating legislation barring racial discrimination in voting (i.e., the Voting Rights Act), adopting protections for transgender individuals, and ensuring that people are not barred from entering the United States on the basis of religion and other protected group memberships, among other possibilities.

The main point here is that structural change does not simply involve adding or removing penalties but rather discerning which actions should be penalized and which should not. Because the contributions of moral psychology constitute a main focus of this paper, our emphasis has been on specific interventions backed by evidence from this field—and because psychology as a field is designed to focus on the individual psyche, these interventions work to coordinate *individuals'* views in hopes of reducing bias on a group level. Such interventions can be beneficial, particularly when their implementation is sensitive to their limitations (e.g., when they are administered immediately before an important decision point in recognition of the fact that effects may wear off soon after participants complete the intervention). Indeed, such interventions may be particularly necessary because changing legislation takes time and legislator buy-in. Individual-level interventions can provide needed relief while waiting for structural-level changes, but the root of negative intergroup relations runs deeper than bias stemming from individual and interpersonal processes. Thus, individual-level interventions should precede and potentially be used in combination with—not instead of—legislative reform and other structural solutions. Of course, reducing such negative outcomes is desirable in the legal context given that it is a context where lives hang in the balance; nevertheless, the benefits

conferred by the interventions highlighted in this section may also generalize to domains outside the legal context.

Conclusions

Using the example of the United States legal system, we argued that law can be an effective means to coordinate diverse views regarding punishment and intergroup relations. In so doing, we showed how coordination can impede justice (e.g., by promoting public consensus that the people whom the law punishes are irredeemably bad) as well as advance justice (e.g., by promoting anti-discrimination norms). Such coordination relies on moral cognition and behavior. For instance, law shapes social cognition both by communicating that people who have had contact with the legal system are immoral and by convincing the public, sometimes over long periods of time, that discrimination is immoral. Insights from moral psychology can also connect social cognition and law by suggesting effective interventions to further the law's egalitarian aims. Ultimately, findings from moral psychology—together with structural reform—can help create a world where all persons are indeed equal before the law.

Introduction to Chapter 2

Chapter 1 reviewed several lines of evidence suggesting that certain forms of legal punishment, such as incarceration, are especially well-suited to communicate morally relevant information. Although, as mentioned in Chapter 1, some scholars have argued that punishment has the power to communicate such messages, relatively little work has precisely captured how people actually interpret punishment's messages. Chapter 2 begins to shed light on this topic by probing participants' inferences about what punishment signals about a punished individual's *past*.

In an initial study, children and adults learned about an individual who had received one especially severe form of legal punishment (incarceration). Participants subsequently answered both open- and closed-ended items regarding why that individual was punished. The purpose of these items was to examine what types of inferences people make about others after learning that they have received punishment in the past. Importantly, testing both children and adults in the same paradigm shed light on how one factor—namely, age—shapes people's understanding of punishment's messages. Additionally, Chapter 2 examined the extent to which another factor—namely, personal relationships with incarcerated people—shapes inferences about individuals who have been implicated in the criminal legal system. Here, both children of incarcerated parents and children whose parents were not incarcerated provided qualitative data regarding why they thought people come in contact with the legal system. Additionally, both groups of children learned about an individual who came in contact with the criminal legal system and subsequently indicated their agreement with different explanations for this outcome. By investigating the roles of age and early social experiences in shaping people's understanding of punishment's past-oriented messages, the current work clarifies how early punishment-related

concepts arise. In doing so, Chapter 2 therefore contributes to theories of punishment, moral psychology, and social cognitive development.

Chapter 2:
**Children's and Adults' Understanding of Punishment and the
Criminal Justice System**

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Abstract

Adults' judgments regarding punishment can have important social ramifications. However, the origins of these judgments remain unclear. Using the legal system as an example domain in which people receive punishment, the current work employed two complementary approaches to examine how punishment-related concepts emerge. Study 1 tested both 6- to 8-year-olds and adults to ascertain which components of "end-state" punishment concepts emerge early in development and remain stable over time, and which components of punishment concepts change with age. Children, like adults, agreed with and spontaneously generated behavioral explanations for incarceration. However, children were more likely than adults to attribute incarceration to internal characteristics. Neither children nor adults reported that incarceration stems from societal-level factors such as poverty. Study 2 built on the results of Study 1 by probing the extent to which early punishment-related concepts in the legal domain emerge from a specific form of social experience—namely, parental incarceration. Children of incarcerated parents, like children whose parents were not incarcerated, were more likely to reference internal and behavioral factors than societal factors when discussing why people come into contact with the justice system. Taken together, these studies clarify how punishment-related concepts arise and therefore contribute to theories of moral psychology, social cognitive development, and criminal justice.

Keywords: explanation; incarceration; morality; punishment; social cognitive development

Children’s and Adults’ Understanding of Punishment and the Criminal Justice System

During season three of the American comedy television series “The Office,” the employees of Dunder Mifflin Paper Company learned that their new co-worker, Martin, previously spent time in prison. After learning this information, the employees squandered much of the workday speculating about why Martin had been incarcerated. While some employees guessed that a specific societal-level reason (racism) played a role in Martin’s incarceration, others insinuated that Martin was incarcerated for individual-level factors such as performing illegal behaviors or possessing negative internal qualities.

Although the events described above are fictitious, attributions for incarceration and other forms of punishment may have social consequences. Generally, perceivers are more likely to help and feel positively toward individuals whose misfortune (e.g., incarceration or other forms of punishment) is attributed to external versus individual-level causes (e.g., Cochran, Boots, & Heide, 2003; Cozzarelli, Wilkinson, & Tagler, 2001; Rudolph, Roesch, Greitemeyer, & Weiner, 2004). As such, the inferences people make about why others receive punishment may impact their attitudes and behaviors toward individuals who have received one of society’s harshest punishments—incarceration.

The present work investigated how punishment-related concepts arise in two complementary ways. Study 1 investigated the origin of adults’ punishment concepts by asking how children and adults explain incarceration. In doing so, Study 1 provided insight into which punishment concepts remain stable throughout development and which change with age. Study 2 built on the results of Study 1 by probing the extent to which social experiences during childhood alter the structure of early-emerging punishment concepts. Specifically, Study 2 examined the

role of parental incarceration in children's concepts. Taken together, these studies provide insight into how development (Study 1) and social experience (Study 2) give rise to moral judgment related to punishment.

Studying Punishment in the Context of the Criminal Justice System

The current studies used the criminal justice system as an example domain in which to study punishment-related concepts. We did so for two reasons. First, prior experiments testing children's concepts of punishment have typically focused on relatively minor moral transgressions (e.g., breaking an object, failing to help another person, Bregant, Shaw, & Kinzler, 2016; Bregant, Wellbery, & Shaw, 2019; Chernyak & Sobel, 2016; Cushman, Sheketoff, Wharton, & Carey, 2013; Hamlin, 2013; Vaish, Carpenter, & Tomasello, 2010; Yang, Choi, Misch, Yang, Dunham, 2018). This literature makes crucial contributions to scientific understanding of how children judge moral violations that they are likely to encounter in their own lives. At the same time, children's inferences about severe moral transgressions remain unclear, and their judgments about severe punishment might differ in important ways from social cognition in other contexts. For instance, children may be especially likely to make dispositional attributions in the context of the criminal justice system because they infer that severely punished actions are worse than actions that are less severely punished (Bregant et al., 2016) and that people who perform particularly bad actions are dispositionally bad people (Uhlmann, Pizarro, & Diermeier, 2015).

Second, incarceration touches the lives of millions of United States residents. The United States incarcerates more people than any other country (Mears & Cochran, 2015), amounting to more than 6.6 million individuals serving time in an adult correctional facility at the end of 2016 (Kaeble & Cowhig, 2018). This high rate has collateral consequences for children, 2.7 million of

whom have an incarcerated parent (The Pew Charitable Trusts, 2010). Despite its commonality, incarceration remains understudied within psychology. The current work sought to clarify how people perceive individuals who have experienced this common form of punishment. Further, we asked how these perceptions change with age and with greater personal experience with the justice system.

Adults' Punishment Concepts

Psychologists have long sought to understand the factors underlying adults' moral judgments (e.g., Graham, Haidt, & Nosek, 2009; Gray, Young, & Waytz, 2012; Haidt & Graham, 2007; Haidt & Joseph, 2004; Schein & Gray, 2018; Waytz & Young, 2012; Young & Tsoi, 2013). Within this larger body of work, many have investigated the role of mental states in judgments of right and wrong. Adults typically judge accidental harms to be less severe than intentional ones (e.g., Chakroff, Dungan, & Young, 2013; Cushman, 2008; Young & Saxe, 2011) and blame those who have bad desires even when those desires are only indirectly connected to a harmful event (e.g., a man coerced by attackers to kill his wife's secret lover is seen as blameworthy because he wanted his wife's lover dead anyway, Woolfolk, Doris, & Darley, 2006). A related literature has examined how perceptions regarding another type of internal quality—moral character—influences adults' judgments of right and wrong (e.g., Alicke, 1992, 2000; Nadler & McDonnell, 2011; Pizarro & Tannenbaum, 2011). For example, in one line of work, adults learned about individuals with good versus bad moral character who committed a transgression (Nadler & McDonnell, 2011). Despite the fact that each actor performed the same behavior, participants judged the “bad” individual's actions more negatively than those of the “good” individual.

Thus, converging lines of evidence suggest that transgressors' internal characteristics (e.g., intent, moral character) influence adults' moral judgments. However, the factors underlying judgments of moral *wrongness* do not perfectly mirror those that underlie judgments of whether or not someone should receive *punishment*. Whereas wrongness judgments largely hinge on internally-oriented factors such as intent and moral character, judgments concerning punishment are highly contingent on behaviors themselves (Cushman, 2008; Cushman, Dreber, Wang, & Costa, 2009). In one experiment demonstrating this effect (Cushman et al., 2009), adults punished individuals whose behaviors caused negative outcomes even when their intentions were good and rewarded individuals whose behaviors caused positive outcomes even when their intentions were bad. Given that behavioral factors weigh heavily on adults' own punishment decisions, it is possible that adults conceptualize punishment as primarily stemming from behaviors. Further, extant legal norms may reinforce this link between punishment and behavior. Adults conflate prescriptive norms (how people should behave) with descriptive norms (what types of behaviors are common, Eriksson, Strimling, & Coultas, 2015). That is, adults reason that what *should* occur actually *does* occur. In the United States, doctrines in criminal law assert that people should be punished for their behaviors and that extra-legal factors (e.g., inferences about an individual's moral character) should not influence punishment decisions in most cases (*People v. White*, 1840). Therefore, adults may infer that people *are* severely punished (e.g., incarcerated) for their behaviors, and not for internal reasons, because of legal standards specifying what *should* occur.

Within moral psychology, much work on punishment has focused on participants' propensity to link punishment with particular behaviors. Within this tradition, relatively less work has examined how adults might think about another factor that underlies punishment

decisions—societal inequality. Recent scholarship has highlighted how systems of punishment (e.g., the American criminal justice system) disproportionately impact people who are marginalized on the basis of group memberships, particularly race (e.g., Alexander, 2012; Forbes, 2016; Forman, 2017; Glaser, 2015; Harcourt, 2007; Travis, Western, & Redburn, 2014). Black people are stereotyped as criminals (Eberhardt, Goff, Purdie, & Davies, 2004) and are over-represented in United States jails and prisons (Alexander, 2012; Forman, 2017). Furthermore, their experiences in the legal system are strikingly different from Whites' experiences. Black children are perceived as older than White children of the same age and treated more harshly as a result (Goff, Jackson, Di Leone, Culotta, & DiTomasso, 2014; Rattan, Levine, Dweck, & Eberhardt, 2012). Black adults and adults who look stereotypically Black are more likely than White adults and adults who look less stereotypically Black to face racial profiling (Glaser, 2015; Tyler & Wakslak, 2004) and to find themselves on the receiving end of government violence (Eberhardt, Davies, Purdie-Vaughns, & Johnson, 2006; Kahn, Goff, Lee, & Motamed, 2016). Disadvantage based on race can compound disadvantages based on other group memberships, such as gender (Allen, Flaherty, & Ely, 2010; Rathbone, 2007) and socio-economic status (Eubanks, 2018). Though converging evidence suggests that societal factors such as racism and poverty play a critical role in mass incarceration, it is likely that societal factors lay at the periphery of adults' punishment-related concepts because adults often underestimate the scope of societal inequality (Davidai & Gilovich, 2015; Kraus, Rucker, & Richeson, 2017; Norton & Ariely, 2011). In one line of work, participants, on average, overestimated current levels of racial economic equality by nearly 25% (Kraus et al., 2017). Given that adults often misperceive the extent to which societal inequality impact the lives of others, they may not readily link punishment with societal factors.

In sum, past work has provided critical insight into how adults might conceptualize punishment, suggesting that adults may view legal punishment as stemming from behavioral—but not internal or societal—factors. However, the origin of these “end-state” punishment concepts remains unclear. By investigating early punishment concepts, it is possible to learn which components of “end-state” punishment concepts are present even before most children become acquainted with formal, complex systems of punishment governing society. Doing so can also clarify how adult sociopolitical thought is constrained by early childhood cognition. Indeed, other programs of research argue that some psychological processes that emerge during childhood shape adult cognition (e.g., Block & Block, 2006; Fraley, Griffin, Belsky, & Roisman, 2012; Heiphetz, Spelke, & Young, 2015; Hussak & Cimpian, 2018). A similar analysis may apply to early-developing punishment concepts. Certain components of punishment concepts may emerge early in ontogeny, remain stable over time, and, thus, guide socio-moral judgment throughout development. Drawing on research from social, cognitive, and developmental psychology, the following section lays out several possibilities regarding which components of children’s punishment concepts remain stable throughout development and which undergo change.

Which Components of Punishment-Related Concepts Remain Stable Throughout Development and Which Change with Age?

Conceptual development has traditionally been understood as overhauling naïve theories guiding childhood thinking and reasoning with more sophisticated, accurate concepts (for a review, see Shtulman & Lombrozo, 2016). In other words, conceptual development has traditionally been synonymous with “conceptual replacement.” However, more recent models suggest that “end-state” concepts consist of two co-existing bundles of concepts: those that have

remained stable since childhood and those that have changed over the course of development (e.g., Eidson & Coley, 2014; Goldberg & Thompson-Schill, 2009; Heiphetz, Gelman, & Young, 2017; Heiphetz, Lane, Waytz, & Young, 2016; Kelemen, Rottman, & Seston, 2013; Shtulman & Schulz, 2008). While “end-state” punishment concepts likely follow this trend, it is unclear which components of these concepts change with age and which remain relatively stable from childhood to adulthood.

Evidence hints that the link between behavioral factors and punishment is stable across age. In one study, children between the ages of four and eight years consistently reported that accidental harms were punishable but not necessarily morally wrong and that attempted, but failed, harms were morally wrong but not necessarily punishable (Cushman et al., 2013). These results suggest that children’s punishment decisions, like those of adults (Cushman, 2008; Cushman et al., 2009), are sensitive to the outcomes of harmful behaviors. Given that children’s judgments about punishment largely hinge on behavioral factors, children may infer that others receive punishment for behavioral reasons.

While the link between punishment and behaviors may remain stable across age, the link between punishment and internal characteristics may change. This possibility is grounded in prior work in developmental and cognitive psychology demonstrating that children, compared to adults, are especially likely to navigate the social world with an eye toward internal characteristics. Children’s attention to internal states may be rooted in psychological essentialism—the tendency to view others’ characteristics as arising from internal, immutable, biologically-based “essences” (Gelman, 2003; Medin & Ortony, 1989). In one study investigating age-related changes in essentialist perspectives, children and adults learned about a baby girl who was adopted at birth by a man who lived on an island with only male inhabitants

(Taylor, Rhodes, & Gelman, 2009). Participants then indicated whether this girl would play with tea sets and dolls—activities to which she had never been exposed—or whether she would grow up to enjoy the stereotypically masculine activities that those around her performed, such as fishing and playing with baseball cards. Put another way, participants indicated whether they perceived the adopted child as having an immutable, biologically-based female “essence.” Five- to six-year-olds perceived the child to have an innate, internal essence that guided her gender-linked behaviors and preferences, whereas adults perceived a greater environmental influence. In line with other research demonstrating that essentialism typically decreases with age (e.g., Chalik, Leslie, & Rhodes, 2017; Cimpian & Steinberg, 2014; Gelman, Heyman, & Legare, 2007; Heiphetz, in press; Heiphetz et al., 2017; Taylor et al., 2009), it is possible that children’s concepts of punishment rely on judgments about internal characteristics even more than do those of adults.

Thus, past work suggests that both children and adults may link punishment with behavior and that children, more than adults, may link punishment with internal characteristics. Competing predictions can be made about the link between punishment and the third factor discussed above, societal inequality. On the one hand, children report less positivity toward individuals who lack resources (e.g., Horwitz, Shutts, & Olson, 2014; Li, Spitzer, & Olson, 2014; Shutts, Brey, Dornbusch, Slywotzky, & Olson, 2016) or are low in status (e.g., Dunham, Chen & Banaji, 2013; Newheiser, Dunham, Merrill, Hoosain, & Olson, 2014) than toward more privileged individuals. Moreover, young children sometimes perpetuate resource-based inequality, suggesting they believe that certain groups are not entitled to fair treatment (Olson, Dweck, Spelke, & Banaji, 2011; also see McGillicuddy-De Lisi, Daly, & Neal, 2006). Given that children engage in punishment-like behaviors toward those who are subject to societal inequality

(see Travis, 2002, for prior work conceptualizing social exclusion and resource inequality as forms of punishment), they may judge that similar types of societal factors play a role in punishment and incarceration. On the other hand, past work suggests that younger children may underestimate the extent to which others' misfortune is caused by externally-oriented, uncontrollable factors (e.g., societal inequality, Leahy, 1983; Neff, Cooper, & Woodruff, 2007). Therefore, children may be unlikely to attribute punishment and incarceration to societal inequality. In this way, they would respond similarly to adults, who, as previously mentioned, underestimate the extent to which social inequality influences life outcomes (e.g., Kraus et al., 2017).

In sum, the current work assessed children's and adults' judgments regarding incarceration to gain insight into which components of punishment-related concepts change and which remain stable across development. Past work suggests that children, like adults, may link punishment with behavior. Past work also suggests that children may be more likely than adults to link punishment with internal characteristics. Finally, past work supports two alternative predictions regarding age-related change or stability in associations between punishment and societal inequality. The current work tested these possibilities.

How Might Experience with Parental Incarceration Shape Punishment-Related Concepts?

Above, we outlined how punishment concepts might change or stay the same across age. However, the developmental trajectories outlined above are agnostic to the idea that developing concepts are shaped by children's social experiences (for evidence that social experience shapes concepts, see Byers-Heinlein & Garcia, 2015; Chalik et al., 2017; Deeb, Segall, Birnbaum, Ben-Eliyahu, & Diesendruck, 2011; Kinzler & Dautel, 2012; Mandalaywala, Ranger-Murdock,

Amodio, & Rhodes, 2018; Rhodes & Mandalaywala, 2017; Rhodes & Gelman, 2009; Roberts & Gelman, 2016; Smyth, Feeney, Eidson, & Coley, 2017). As previously mentioned, millions of children in the United States have had experience with the criminal justice system due to parental incarceration (The Pew Charitable Trusts, 2010). Yet, it is unclear how this experience may shape the trajectory of punishment-related concepts. The current work addressed this question. Drawing on separate literatures investigating (1) the role of intergroup contact on essentialism and (2) the role of social input on children's beliefs, we outline three ways in which parental incarceration may shape developing moral judgments.

The possible role of intergroup contact. Prior work has argued that essentialism arises from basic cognitive processes but that personal experiences and social input shape how and when children employ essentialist beliefs (e.g., Chalik et al., 2017; Kinzler & Dautel, 2012; Roberts & Gelman, 2016). However, different theoretical proposals make distinct predictions regarding the impact of personal experiences and social input on essentialist views. On the one hand, some work suggests that intergroup contact may decrease essentialist reasoning. Children who attend religiously (Smyth et al., 2017) and ethnically (Deeb et al., 2011) diverse schools exhibit less essentialist beliefs about each respective social group than those who attend homogenous schools. Furthermore, children exposed to linguistic diversity are less likely to report that language is inherited and stable than are monolingual children (Byers-Heinlein & Garcia, 2015). Given that experiences with stigmatized group members can reduce essentialism regarding those groups, it is possible that the incarceration of a close family member may lead children to reject the idea that contact with the justice system is determined by stable, inherited properties.

On the other hand, some studies suggest that increased contact with members of a particular group may bolster essentialist views of individuals belonging to that group. For example, compared to White children, Black children report more essentialist views of race (Kinzler & Dautel, 2012; Roberts & Gelman, 2016), perhaps because experiential factors (e.g., witnessing race-based discrimination) may facilitate racial essentialism (see Quintana, 1994, 1998).¹ Similar reasoning may apply to how children of incarcerated parents think about contact with the justice system. These children may be especially likely to witness discrimination against people who have experienced contact with the justice system (for evidence of such discrimination, see Forbes, 2016; Pager, 2008; Western, Braga, Davis, & Sirois, 2015). In turn, they may be especially likely to believe that people who are involved in this system possess an internal “essence” that makes them different from non-involved individuals.

The possible role of social input. Traditional theories of learning and conceptual development argue that children acquire knowledge by directly interacting with the world (e.g., Bruner, 1973; Needham, Barrett, & Peterman, 2002). However, more recent work has pointed out that children acquire a great deal of knowledge by listening to others (see Gelman, 2009, for review). While the content of child-directed speech varies across contexts, other features of language generalize across settings. Adults often use generic statements—those that convey a property that generalizes to an entire category, such as “tigers have stripes” or “girls like pink”—when communicating with children (Gelman, Chesnick, & Waxman, 2005; Gelman, Goetz, Sarnecka, & Flukes, 2008; Gelman, Taylor, & Nguyen, 2004; Pappas & Gelman, 1998; Rhodes, Leslie, & Tworek, 2012). Specifically, adults typically produce over 30 generic statements per

¹ The sample of children in Roberts and Gelman (2016) included children belonging to several different racial minority groups. Eighteen children were identified as Black, three children were identified as Asian, two children were identified as Latino/a, and one child was identified as multiracial. However, the authors note that all results hold when examining responses of only Black children.

hour when speaking to children and, by extrapolation, hundreds of generic statements per day (Gelman, Coley, Rosengren, Hartman, & Pappas, 1998). Given the prevalence of generic statements in child-directed speech, adults may use similar language when talking to children about punishment (e.g., incarceration).

For example, if a child asks what prison is, it may seem overly complicated to provide a full explanation, and adults may default to statements like “bad people go to prison” even if they would make more nuanced statements to other adults (similarly to how adults may tell children that “girls like pink” even while privately recognizing that not all girls like pink and that some people who like pink are not girls). Generic statements license the inference that category members have an internal “essence” that creates the relevant property—that a “tiger essence” leads to stripes or that a “girl essence” leads to liking pink (Bloom, 2004; Cimpian & Markman, 2009; Rhodes et al., 2012). Therefore, children who hear generic statements about punishment may attribute criminal justice contact to internal factors, regardless of whether or not they have personal experience with the justice system (although, of course, such experience could play a crucial role in other aspects of social cognition not tested here).

In sum, three different predictions could be made on the basis of past research. While diverse social experiences sometimes decrease essentialism (e.g., Smyth et al., 2017), other work has reported that increased contact with certain groups may actually increase essentialist views of individuals belonging to that group (e.g., Kinzler & Dautel, 2012; Roberts & Gelman, 2016). A third possibility suggests that views of incarceration may be primarily informed by a common way in which adults speak to children; if this is the case, both children of incarcerated parents and children whose parents have never been incarcerated may hold similar ideas about

incarceration. Study 2 tested among these possibilities as a way to understand how the social experience of having an incarcerated parent might shape early concepts related to punishment.

Overview of Current Research

The current work used both qualitative and quantitative methods to investigate the origin and development of punishment-related concepts. In Study 1, children and adults responded to an open-ended question asking them to describe prison or jail and, subsequently, used a Likert-type scale to indicate the extent to which they agree people are sent to prison for different reasons. This study tested both children and adults in the same paradigm to determine which components of punishment concepts remain stable across development and which components change. Study 2 built on the results of Study 1 by probing how divergent social experiences during childhood might alter the structure of early-emerging punishment concepts. Specifically, Study 2 recruited both children of incarcerated parents and children whose parents were not incarcerated to test the extent to which parental incarceration shapes children's punishment-related concepts.

Study 1

Study 1 investigated how children and adults reason about why people become incarcerated. In doing so, we sought to clarify the origin of “end-state” punishment concepts and determine which components of children's punishment concepts persist throughout development and which change. Here and for Study 2, we report all conditions run, measures collected, participant exclusions, and how sample sizes were determined. Analyses for both studies were conducted only after all data for that study had been collected.

Method

Participants. Participants included 99 children between six and eight years old ($M_{\text{age}}=6.94$ years, $SD_{\text{age}}=.77$ years; 50% female). Parents identified their children as White or European-American (73%), Black or African-American (5%), Asian or Asian-American (9%), Native American or Pacific Islander (1%), multiracial (2%), or “other” (7%); the remaining parents did not answer this question. Parents identified their child’s ethnicity by answering a separate question; 8% of participant were identified as Hispanic or Latina/o. Responses from 13 additional children were excluded for the following reasons: child did not understand the words “prison” or “jail” ($n=8$), parents interfered during testing ($n=4$), and child wanted to end study ($n=1$). Children were recruited in a local museum or via a lab database; all children received a small prize for participating.

We also recruited 168 adults between 19 and 69 years old ($M_{\text{age}}=28.70$ years, $SD_{\text{age}}=11.10$ years; 57% female). Adults completed a demographic questionnaire after answering all experimental items; they self-identified as White or European-American (79%), Black or African-American (4%), Asian or Asian-American (12%), multiracial (4%), or “other” (2%). Additionally, 6% of adults self-identified as Hispanic or Latina/o. Adults also indicated their political orientation using a seven-point Likert scale ranging from 1 (*Very liberal*) to 7 (*Very conservative*). On average, participants rated themselves as relatively liberal ($M=3.23$, $SD=1.48$). Self-reported political orientation did not reliably predict responses to the dependent measures in Study 1 (see Supplementary Materials for relevant analyses).

Data from nine additional adults were excluded because they failed to correctly answer an attention check question that required them to recall one reason for incarceration that had been presented earlier in the study. As is common in studies comparing children and adults (e.g., Cogsdill, Todorov, Spelke, & Banaji, 2014; Heiphetz et al., 2017; Roussos & Dunham, 2016;

Shtulman & Phillips, 2018; Smith & Warneken, 2016; Starmans & Bloom, 2016), we recruited adults online, via Amazon Mechanical Turk and the subject pool of a private university in the United States, to increase the size and diversity of the sample (for evidence suggesting that recruiting via MTurk increases sample diversity, see Buhrmester, Kwang, & Gosling, 2011; Horton, Rand, & Zeckhauser, 2011). Preliminary analyses did not reveal differences between adults who participated via Amazon Mechanical Turk and adults who participated via the subject pool; therefore, subsequent analyses collapsed across all adult participants. Adults who participated via Amazon Mechanical Turk received \$1.00, and adults who participated via the subject pool received .5 credits.

Seven adults reported that they had previously served time in a jail or prison. Additionally, four parents reported that their child knew an incarcerated person. The main pattern of results reported in this study emerged even when these participants were excluded from analyses. Adults also indicated how many incarcerated people they knew, and this variable did not reliably predict responses to the dependent measures in Study 1 (see Supplementary Materials for relevant analyses).

Procedure. Here and in Study 2, an experimenter tested children individually in a quiet room. First, the experimenter told children that he or she would ask questions about another person and that there were no right or wrong answers. The experimenter then said, “I’m going to be asking you some questions about prison and about people who are in prison. What do you think prison is?”² Asking children to describe prison using an open-ended format allowed participants to spontaneously describe their thoughts about incarceration when not guided by the

² Half of the participants followed the same procedure but heard the word “jail” instead of “prison.” This manipulation did not influence participants’ responses, and data were collapsed across these two conditions.

interviewer. While the original purpose of this question was to simply understand how participants conceptualize incarceration, many children (and adults) spontaneously offered reasons for why individuals become incarcerated when answering this question. The experimenter then asked, “Okay, and what do you think prison is like?” The purpose of this question was to further probe individuals’ conceptions of incarceration. Because this question did not directly concern the main question of the current research—how children and adults explain incarceration—it will not be discussed further.

While there are several benefits to open-ended items, one drawback is that they may demand more cognitive and linguistic ability than do closed-ended questions. As a result, open-ended questions may not fully capture children’s thoughts about complex topics (e.g., Ganea, Lillard, & Turkheimer, 2004; Miller & Bartsch, 1997). Given the possibility that children could not cogently articulate their thoughts when responding to the open-ended question, we subsequently asked children a series of closed-ended questions measuring their agreement with different explanations for incarceration. In addition to potentially helping children articulate their thoughts, closed-ended items allowed us to employ an experimental design. By directly manipulating the independent variable (explanation type), we could draw stronger inferences about the structure of participants’ punishment concepts.

Before asking children the closed-ended questions, the experimenter introduced children to a five-point scale consisting of stick figures arrayed from smallest to largest on a sheet of paper and instructed children on how to use the scale (e.g., asking them to point to the smallest picture if they didn’t agree at all with a sentence the experimenter said). The remaining labels were “agree a little bit,” “agree a medium amount,” “agree a lot,” and “agree completely.” The experimenter asked children two test questions to gauge their understanding of the scale (e.g.,

“Can you show me where you would point if you didn’t agree with the answer at all?”). On average, children used the scale correctly: they responded near scale floor ($M=1.07$, $SD=.47$) when indicating that they “don’t agree with the answer at all” and near the scale midpoint ($M=2.97$, $SD=.43$) when indicating that they “agree a medium amount.” Participants who answered incorrectly received corrective feedback.

Following these instructions, the experimenter displayed a photograph of a young Black or White man on a laptop and asked the following four experimental items in counterbalanced order:

- “How much do you agree that this person [pointing to photograph displayed on laptop] is in prison because he is a bad person?” This question was intended to measure the extent to which participants endorsed an explanation highlighting an internal characteristic.
- “How much do you agree that this person is in prison because he did something wrong?” This question was intended to measure the extent to which participants endorsed an explanation highlighting behavioral attributions, i.e., attributions to a characteristic that could potentially change over time (Gelman, 2003).
- “How much do you agree that this person is in prison because he didn’t have very much money when he was growing up?” This question was intended to measure the extent to which participants endorsed an explanation highlighting societal forces that are necessarily not tied to any individual. We tested children’s endorsement of economic inequality as a reason for incarceration, as opposed to other societal factors, because children of the age tested here have some understanding that differences in wealth are associated with disparate life outcomes (Leahy, 1983; Sigelman, 2012) but do not consistently attribute negative outcomes to other societal factors, such as racism

(Quintana, 1994, 1998). Thus, we did not probe participants' agreement with explanations linking race and incarceration (though see Introduction for a review of relevant literature suggesting that the negative consequences of incarceration disproportionately accrue to Black people).

- “How much do you agree that this person is in prison because he has a younger brother?”

This question was intended to measure the extent to which participants endorsed an irrelevant explanation and was designed to serve as a control item to ensure that children did not simply agree with all explanations.³

Participants were randomly assigned to view either a White man ($n_{\text{children}}=47$; $n_{\text{adults}}=85$) or a Black man ($n_{\text{children}}=52$; $n_{\text{adults}}=83$).⁴ The purpose of this manipulation was to determine whether the target's race influenced participants' explanations. Although Black and White individuals can have very different experiences in the legal system (e.g., Alexander, 2012; Eberhardt et al., 2006; Glaser, 2015; Harcourt, 2007), target race did not reliably influence participants' responses. This finding is consistent with prior work suggesting that children may not become aware of racism and race-based inequalities until later in childhood (e.g., Quintana, 1994, 1998). Therefore, the analyses reported in the main text collapse across this variable.

³ After responding to the open-ended questions and prior to hearing any of the explanations described in the main text, participants were asked to indicate in a free-response manner why they thought the person was in prison. We included this question because it was not clear *a priori* the extent to which responses to the question, “What is prison?” would offer spontaneous explanations for why people might become incarcerated. However, a substantial number of participants did offer such explanations. Because participants' responses to subsequent items may depend on responses to previous items (e.g., their first response is likely to reflect their first intuition, and subsequent responses may differ because participants do not want to give the same response to multiple questions or because they thought their first response was “incorrect”), we focused on responses to the first open-ended question.

⁴ We used photographs of men because most people incarcerated in the United States are male (Carson & Anderson, 2016). Photographs were taken from Kennedy, Hope, and Raz (2009) and were matched on all variables on which faces in that dataset were normed (perceived age, familiarity, mood, memorability, and picture quality).

Based on recommendations for psychologists (Lakens & Evers, 2014; Simmons, Nelson, & Simonsohn, 2013), we aimed to recruit approximately 50 participants of each age group in each condition. We over-recruited adult participants because we expected that some data would not be usable (e.g., due to failing an attention check question). Adults completed the procedure online and read all experimental items to themselves. They typed their answers to the open-ended item into a textbox and selected the scale label that best matched their response in the close-ended portion of the study (i.e., they viewed only the verbal labels, not the stick figures shown to children). Though children and adults completed slightly different procedures (e.g., adults responded using a scale marked only with verbal labels as opposed to seeing images), past work suggests that such minor methodological modifications do not exert a reliable influence on adults' responses (see Brandone, Gelman, & Hedglen, 2015; Heiphetz, Strohminger, Gelman, & Young, 2018; Shaw, Li, & Olson, 2012). Thus, it is unlikely that any age-related differences reported in the present study are an artifact of methodological modifications.

Results

Analyses that included multiple comparisons were adjusted using a Bonferroni correction. Below, we report the corrected alpha level alongside uncorrected p values. Additionally, we report the smallest effect size that could be detected given the present samples. For ease of interpretation, we report both the effect sizes and their corresponding benchmark labels (“small”, “medium”, “large”); these effect sizes were determined using sensitivity power analyses and assume 80% power and an $\alpha=.05$. In addition to the main analyses reported below, we examined whether participant age predicted responses in our data. Age did not reliably predict children's or adults' responses; see Supplementary Materials for these analyses.

Also see Supplemental Materials for descriptive statistics and correlations among experimental items.

“What is Prison?” Two researchers coded responses to this item using categories developed based on theoretical interest (how often participants mentioned internal characteristics, behavioral factors, and societal factors when explaining incarceration, see Table 2.1 for example quotes). Responses that referred to internally-focused properties of an individual (e.g., moral character, biological traits) were coded in the internal characteristics category, while responses that referred to behaviors were coded in the behavioral factors category. Responses referencing specific crimes or other behaviors (e.g., describing prison as a place where people go when they kill someone) or crimes or other behaviors in a more general sense (e.g., describing prison as a place where people go when they break the law or when they do something wrong, without specifying a particular act) were both coded in the behavioral factors category. The third code was developed to capture responses attributing incarceration to societal factors that are not specifically tied to any individual (e.g., describing prison as a place that disproportionately targets members of marginalized groups).

The coder assigned each response a 1 if it referenced the category and a 0 if it did not. For example, a participant who reported that prison “is a place where bad people go” received a 1 in the “internal” category and a 0 in the remaining categories for this question. Codes were not mutually exclusive, and a single participant’s response could receive several codes. Thus, no code for “other” responses existed; if participants failed to mention any of the available categories, they received a zero for each category. Each response was also coded by a second rater who was blind to hypotheses and to the first rater’s codes. The raters achieved inter-rater reliabilities of .89 for “internal” codes and .83 for “behavioral” codes, indicating “substantial” to

“almost perfect” agreement (Landis & Koch, 1977). Kappa could not be calculated for “societal” codes because one rater categorized 100% of responses as falling outside of this category, leading to invariance. Even so, the other rater indicated that only 1% of responses referenced societal factors, indicating that the presence of societal codes was rare. Disagreements were resolved via discussion.

Table 2.1

Coding for “What is Jail?” Question

<u>Codes</u>	<u>Code Descriptions</u>	<u>Example Quotes</u>
Internal characteristics	References internal characteristics, such as the person’s perceived badness	“A place where bad people go” (child) “A place to contain bad people” (adult)
Behaviors	References behaviors	“Somewhere you go if you broke the law” (child) “A place for people who have committed a crime” (adult)
Societal	References societal factors that are not specifically tied to any individual	“A place to put the undesirable/abnormal people that society does not want to deal with” (adult)

Two types of analyses investigated participants’ responses (Fig. 2.1). First, chi-squared tests examined potential age differences in responses falling into each category (internal, behavioral, and societal explanations). Thus, *p* values needed to be .017 or lower to pass the Bonferroni-corrected significance threshold. A sensitivity analysis revealed that this analysis could detect “small” effect sizes ($V=.17$); all significant comparisons yielded effect sizes above this threshold. Children were more likely than adults to mention internal factors ($X^2(1, N=267)=57.80, p<.001, V=.47$), whereas adults were more likely than children to mention crimes or other bad behaviors, ($X^2(1, N=267)=10.52, p=.001, V=.20$). Zero children and only one adult

referenced societal factors when discussing incarceration; no significant difference emerged between age groups for this category, ($X^2(1, N=267)=1.61, p=.21, V=.05$).

Second, McNemar's tests compared the extent to which children and, separately, adults mentioned each category versus each other category. This analysis included six comparisons; therefore, p values needed to be .008 or lower to pass the Bonferroni-corrected significance threshold. These analyses could detect an odds ratio (OR) of 2.05 for differences in children's explanations and an OR of 1.73 for differences in adults' explanations; all significant comparisons yielded odds ratios above these thresholds. Children were more likely to generate internal and behavioral explanations than societal explanations ($ps < .001, ORs = \text{infinity}$); the former two categories did not significantly differ from each other ($p = .382, OR = 1.29$). Adults were more likely to generate behavioral explanations than either internal or societal explanations ($ps < .001, ORs \geq 27.75$); the latter two categories did not significantly differ from each other ($p = .219, OR = 5.00$).

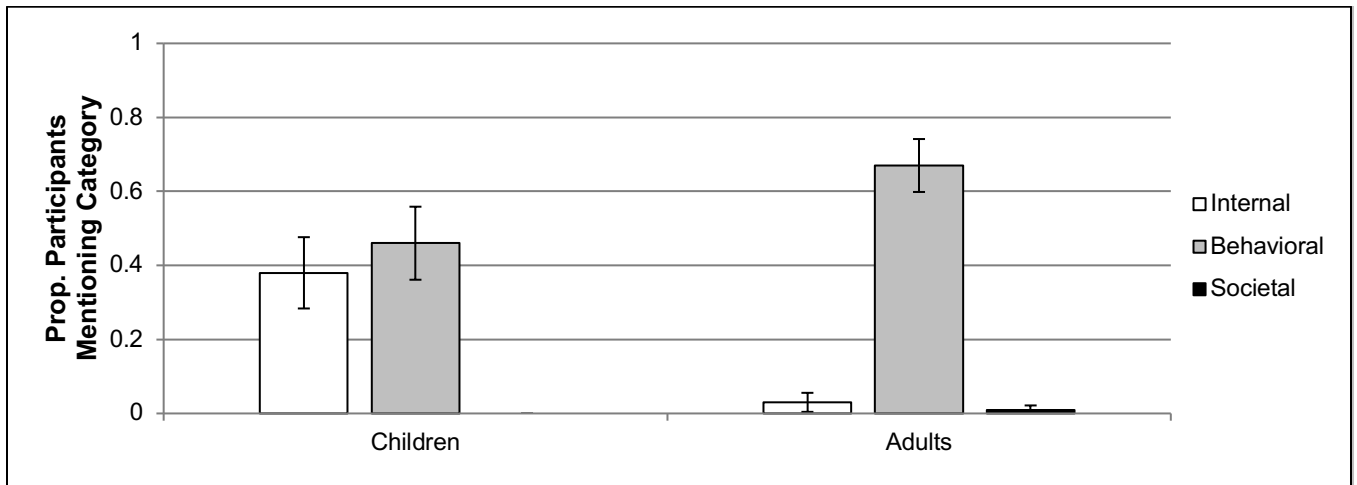


Fig. 2.1. Proportion of participants who made internal, behavioral, and societal attributions for incarceration when defining jail or prison in Study 1. Error bars represent 95% confidence intervals.

Agreement with Explanations for Incarceration. In addition to the open-ended questions described above, participants used a five-point scale to indicate how much they agreed with four explanations for incarceration: that the incarcerated person was in prison because “he is a bad person,” because “he did something wrong,” because “he didn’t have very much money when he was growing up,” and because “he has a younger brother.” Agreement was analyzed using a 2 (Participant Age: child vs. adult) x 4 (Explanation: internal vs. behavioral vs. societal vs. irrelevant) mixed ANOVA with repeated measures on the second factor. This analysis revealed main effects of Participant Age ($F(1, 260)=86.37, p<.001, \eta_p^2=.25$) and Explanation ($F(2.62, 679.91)=413.29, p<.001, \eta_p^2=.61$), which were qualified by a Participant Age x Explanation interaction ($F(2.62, 679.91)=36.95, p<.001, \eta_p^2=.12$).

To examine the Participant Age x Explanation interaction, we conducted two sets of tests (Fig. 2.2). First, we investigated whether children and, separately, adults distinguished among the different explanations. This analysis included 12 comparisons; therefore, p values needed to be .004 or lower to pass the Bonferroni-corrected significance threshold. These analyses could detect “small” effect sizes both for differences in children’s agreement with different explanations (Cohen’s $d=.28$) and for differences in adults’ agreement with different explanations (Cohen’s $d=.22$); all significant pairwise comparisons yielded effect sizes above these thresholds. (For consistency across analyses, we report effect sizes using partial eta squared for all analyses below; see Supplemental Materials for the Cohen’s d associated with each pairwise comparison.) After applying the Bonferroni correction, the difference in adults’ agreement with the explanation that the person was incarcerated “because he is a bad person” and “because he didn’t have very much money when he was growing up” dropped to non-significance ($F(1, 167)=7.80, p=.006, \eta_p^2=.05$). Other than this exception, adults’ agreement with

each explanation differed significantly from agreement with each other explanation (internal versus behavioral: $F(1, 167)=322.38, p<.001, \eta_p^2=.66$; internal versus irrelevant: $F(1, 167)=179.89, p<.001, \eta_p^2=.52$; behavioral versus societal: $F(1, 167)=230.55, p<.001, \eta_p^2=.58$; behavioral versus irrelevant: $F(1, 167)=830.92, p<.001, \eta_p^2=.83$; societal versus irrelevant: $F(1, 167)=107.39, p<.001, \eta_p^2=.39$). Similarly, children's agreement with each explanation differed significantly from agreement with each other explanation (internal versus behavioral: $F(1, 93)=9.36, p=.003, \eta_p^2=.09$; internal versus societal: $F(1, 93)=143.85, p<.001, \eta_p^2=.61$; internal versus irrelevant: $F(1, 93)=246.43, p<.001, \eta_p^2=.73$; behavioral versus societal: $F(1, 93)=224.49, p<.001, \eta_p^2=.71$; behavioral versus irrelevant: $F(1, 93)=402.22, p<.001, \eta_p^2=.81$; societal versus irrelevant: $F(1, 93)=11.78, p=.001, \eta_p^2=.11$).

Second, we examined whether children and adults provided different responses to each explanation. This analysis included four comparisons; therefore, p values needed to be .013 or lower to pass the Bonferroni-corrected significance threshold. A sensitivity analysis revealed that this analysis could detect a “small” to “medium” sized effect ($d=.36$) for age-related differences in agreement, and all significant pairwise comparisons yielded effect sizes above these thresholds. (As in the analyses above, we report partial eta squared values below for consistency across analyses; see Supplemental Materials for the Cohen's d associated with each pairwise comparison.) Children were more likely than adults to agree with internal ($F(1, 260)=151.85, p<.001, \eta_p^2=.37$), behavioral ($F(1, 260)=21.49, p<.001, \eta_p^2=.08$) and irrelevant ($F(1, 260)=16.66, p<.001, \eta_p^2=.06$) explanations. We did not find a significant difference between children and adults in agreement regarding the societal explanation ($F(1, 260)=.09, p=.759, \eta_p^2=0$).

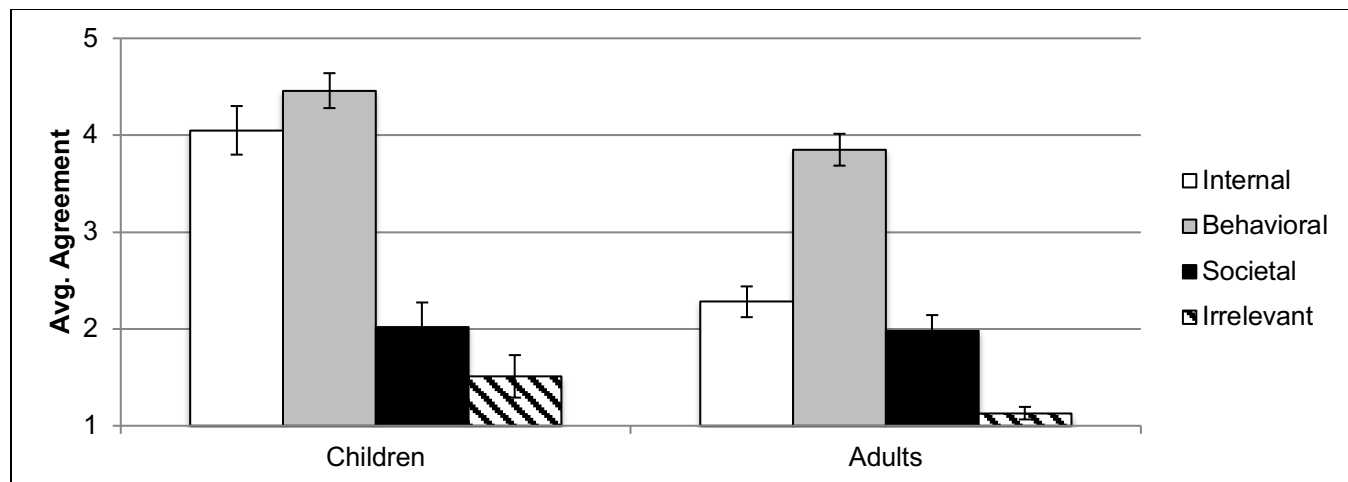


Fig. 2.2. Average agreement with each explanation for incarceration offered in Study 1. Error bars represent 95% confidence intervals.

Discussion

Study 1 examined children’s and adults’ generation of and agreement with explanations for incarceration as a way to understand the origin of “end-state” punishment concepts. In doing so, several findings emerged. Children readily generated and agreed with internal explanations for incarceration; however, this pattern did not emerge among adults. The discrepancy between children’s and adults’ responses suggests that the link between punishment and internal factors wanes throughout development. Moreover, certain components of punishment-related concepts were stable across development. Adults were more likely to generate and agree with behavioral explanations than any other explanation type. Children, like adults, were more likely to spontaneously attribute incarceration to behavioral factors than societal-level factors. Thus, the present work suggests that the link between behaviors and punishment remains stable between the early elementary school years and adulthood. Lastly, neither children nor adults readily mentioned or agreed with societal-level explanations for incarceration. One possible interpretation of this finding is that societal factors may lie at the periphery of punishment-

related concepts throughout development (though see General Discussion for consideration of alternative explanations).

Study 2

The results of Study 1 suggest that children readily attribute punishment to internal and behavioral—but not societal—factors. These findings provide important insight into the structure of early punishment-related concepts; however, because cognition does not occur within a vacuum, it is important to consider how these early concepts may depend on social experience. Study 2 included both children of incarcerated parents and children whose parents were not incarcerated to examine the extent to which parental incarceration—one particularly relevant type of social experience—might shape early punishment-related concepts.

Study 2 also extended Study 1 in several other ways. First, it asked participants why people might engage in behaviors that are associated with incarceration (breaking the law). While children in Study 1 reported that both internal factors and behaviors were likely candidates for why an individual might experience incarceration, previous work suggests that children view others' behaviors as stemming from their internal qualities (e.g., traits, Lillard & Flavell, 1990; Liu, Gelman, & Wellman, 2007). As such, children in Study 1 may have spontaneously mentioned and agreed with behavioral causes for incarceration while actually conceptualizing incarceration as being the result of a multi-factor causal chain. For example, participants in Study 1 could have reasoned that internal qualities cause bad behaviors and that, in turn, bad behaviors cause incarceration. An analogous argument can be made regarding the conceptual link between behavioral and societal factors. Participants may have reasoned that societal factors cause bad behaviors and that, in turn, bad behaviors cause incarceration, but nonetheless simply attributed

incarceration to behavioral factors for the sake of simplicity. By asking about the cause of behaviors, Study 2 tested these possibilities.

Second, Study 2 probed perceptions of *groups* of people as opposed to individuals (e.g., asking why people in general might break the law rather than why a specific person broke the law). In Study 1, participants answered questions about individuals, which may have biased them toward attributions that linked incarceration with individual-level factors (e.g., internal factors, behaviors) and away from societal-level factors that were not clearly linked with a single person. Thus, we sought to clarify the extent to which the results of Study 1 could be explained by semantic subtleties in the question stem.

Third, Study 2 recruited 6- to 12-year-olds to gain greater insight into how perspectives regarding the justice system might change or stay the same during the elementary school years. Study 1 did not find a relation between age and the extent to which participants attributed incarceration to internal factors (see Supplementary Materials), but the age range among children in that study (ranging from six to eight years old) may have been too narrow to capture developmental changes. Past work investigating the developmental trajectory of essentialist reasoning suggests that the tendency to attribute phenomena to internal causes might decrease throughout the elementary school years (e.g., Chalik et al., 2017; Gelman et al., 2007; Heiphetz et al., 2017). Thus, testing a broader range than Study 1 allowed us to determine whether such a decrease may occur in the domain of the justice system.

Method

Participants. In collaboration with two organizations that provide services to families of incarcerated individuals, we recruited 24 6- to 12-year-olds with incarcerated parents ($M_{\text{age}}=9.38$ years, $SD_{\text{age}}=1.95$ years; 46% female). Parents identified their children as White or European-

American (4%), Black or African-American (58%), multiracial (13%), or “other” (25%); the remaining parents did not answer this question. Parents identified their child’s ethnicity by answering a separate question; 42% of participants were identified as Hispanic or Latina/o. Because children of incarcerated parents are a difficult-to-recruit population, we aimed to test as many participants as possible in one year. Our final sample size is similar to samples in other studies testing children (e.g., Gelman et al., 2007; Kushnir, Gopnik, Chernyak, Seiver, & Wellman, 2015; Misch, Over, & Carpenter, 2016; Over, Eggleston, Bell, & Dunham, 2018), especially difficult-to-reach populations (e.g., children of incarcerated parents, Shlafer & Poehlmann, 2010; transgender children, Olson, Key, & Eaton, 2015; Indian children from lower-income families, Ahl & Dunham, 2019). Twenty-nine percent of the children in this sample had an incarcerated mother, and 67% had an incarcerated father; one child’s demographic questionnaire did not indicate the gender of the incarcerated parent. Zero children had two incarcerated parents. On average, children had been separated from their parent for 52.64 months ($SD=31.78$ months, range=8-95 months) and had spoken with their parent in person or via technology (phone, video conferencing) an average of 14.75 times over the past month ($SD=12.37$ times, range=1-31 times).

At one location, staff members distributed consent forms and demographic questionnaires to families who had 6- to 12-year-old children. Staff alerted us when families returned consent forms and scheduled appointments for us to interview the children on-site. At the other location, staff members alerted us when 6- to 12-year-olds were scheduled to participate in a different on-site activity. Members of our research team spoke with the child’s parent or guardian before or after the activity; if they provided consent, we then interviewed the child on-site. In all cases, consent was obtained from the non-incarcerated parent or guardian, and children also provided

assent before beginning the interview. Responses from one additional child were excluded because she did not understand the questions; including her responses in analyses did not alter the pattern of results. Participating families received a \$20 gift card.

We also recruited a group of children whose parents were not incarcerated. Based on recommendations for psychologists (Lakens & Evers, 2014; Simmons et al., 2013), we aimed to recruit approximately 50 participants in this comparison group, although we over-recruited slightly because we expected that some data would not be usable. The final sample included 62 children ($M_{age}=8.11$ years, $SD_{age}=1.40$ years; 69% female). Parents identified their children as White or European-American (37%), Black or African-American (30%), Asian or Asian-American (4%), Native American or Pacific Islander (2%), multiracial (13%), or “other” (15%); the remaining parents did not answer this question. Parents identified their child’s ethnicity by answering a separate question; 33% of participant were identified as Hispanic or Latina/o. Four additional children were tested but excluded from subsequent analyses because a parent interfered during testing ($n=1$), the child did not understand the questions ($n=2$), or the child did not speak English ($n=1$). Additionally, one child completed the study twice; analyses only included his responses from the first session. Children were recruited from a departmental database and from a museum in a large city in the northeastern United States; all children received a small prize for participating.

Procedure

As part of a longer interview, children answered two types of questions about their perceptions of the criminal justice system.⁵ One question was open-ended: “Why do you think people break the law?” The purpose of this question was to determine the extent to which

⁵ The interview also included other types of questions that were part of a separate project, such as questions about children’s emotions toward close others.

participants explained law-breaking by referencing people's internal characteristics. The other questions in Study 2 were adapted from a closed-ended measure used in prior work on children's essentialism (Gelman et al., 2007). We used these questions to link to prior work on children's propensity to use internal explanations. The experimenter said, "Now I'm going to ask you some questions about other people. To answer these questions, you can say 'yes' [coded as 3], 'maybe' [coded as 2], or 'no' [coded as 1]. Does that make sense?" The experimenter then told participants about a person, gender-matched to the participant, who broke the law and asked six questions about that person. Sample items included, "Do you think that [name] can change whether or not he/she's a person who breaks the law, if he/she wants to?" and, "Has [name] always been a person who breaks the law?" In addition to asking about a person who broke the law, the experimenter asked about a person who does good things, a person who does bad things, and a person who does shy things. We included questions about a person who does good things and a person who does bad things to investigate how perceptions of a particular moralized behavior (breaking the law) might compare with perceptions of morally relevant behaviors more broadly. We included questions about doing shy things as a non-moral control variable. All items are available in the journal's online research data repository.

Participants answered all close-ended questions in one block; the order of this block and the open-ended question was counterbalanced across participants. The order in which participants answered questions about the person who broke the law, the person who does good things, the person who does bad things, and the person who does shy things were also counterbalanced, as was the order of the items regarding each person.

Results

As discussed above, we recruited a wider age range of children to clarify whether we would observe changes in essentialism during the elementary school years. However, we did not find age-related differences within each group of participants (children with versus without an incarcerated parent); see Supplementary Materials.

“Why do you Think People Break the Law?” Two researchers coded responses to this open-ended question for the presence of internal, behavioral, and societal explanations. One coder noticed that, in some cases, the types of explanations participants offered seemed qualitatively distinct from the explanations offered in Study 1. For example, some internal explanations referenced stable, negative characteristics, as did the explanations from Study 1. However, other explanations referenced internal characteristics that could potentially change over time, such as thoughts and desires. Similarly, some behavioral explanations referenced the target’s own behaviors, as did the explanations from Studies 1. However, other explanations focused on someone else’s behaviors. To account for these differences, we subdivided the “internal” code into stable versus potentially temporary characteristics, and we subdivided the “behavioral” code into the target’s own behaviors versus others’ behaviors (see Table 2.2 for example quotes).⁶ For consistency across studies, we also retained a code for all internal explanations (stable and temporary internal characteristics collapsed into one category) and, separately, a code for all behavioral explanations (references to the target’s own behaviors and others’ behaviors collapsed into one category). This resulted in seven codes (internal overall, internal-stable, internal-potentially temporary, behavioral overall, behavioral-target, behavioral-others, societal). Across the seven codes, raters reached inter-rater reliabilities ranging from .53

⁶ To ensure that the qualitative responses provided in Study 2 actually differed from those provided in Study 1, the first author re-coded responses in Study 1 for stable versus temporary internal characteristics and behaviors that referenced the target’s behaviors versus others’ behaviors. In Study 1, zero participants referenced internal temporary characteristic or another person’s behavior.

to .87, indicating “moderate” to “almost perfect” agreement (Landis & Koch, 1977). All disagreements were resolved via discussion.

To determine the role that parental incarceration may play in shaping children’s responses, our initial analyses included seven chi-squared tests to compare the presence versus absence of each code among children of incarcerated parents versus children whose parents were not incarcerated. Because this resulted in a total of seven tests, p values needed to be .007 or lower to pass the Bonferroni-corrected significance threshold. This approach allowed for a detection of effects of “medium” size ($V=.32$). No tests reached significance ($X^2(1, Ns \geq 74) \leq 1.73$, $ps \geq .188$, $Vs \leq .15$).

We then used McNemar’s tests to compare the extent to which each group of participants mentioned each category versus each other category. To be consistent with Study 1, we first conducted three comparisons within each group of participants: overall internal versus overall behavioral, overall behavioral versus societal, and overall internal versus societal. We then conducted two additional comparisons, again within each group of participants: internal-stable versus internal-potentially temporary and behavioral-self versus behavioral-others. This resulted in a total of ten comparisons; therefore, p values needed to be .005 or lower to pass the Bonferroni-corrected significance threshold. The sample size of children whose parents were not incarcerated allowed for detection of effects of size $OR=2.92$, and the sample size of children of incarcerated parents allowed for detection of effects of size $OR=4.66$.

Consistent with the results of Study 1, participants were unlikely to reference societal factors; both groups of children were more likely to provide both internal explanations and behavioral explanations than societal explanations (children of incarcerated parents: $ps < .001$, $ORs = \text{infinity}$); children whose parents were not incarcerated: $ps \leq .002$, $ORs \geq 25.00$).

Additionally, children of incarcerated parents were more likely to provide internal explanations that focused on potentially temporary characteristics such as thoughts and desires than explanations highlighting stable internal characteristics such as bad character ($p=.001$, $OR=14.00$). This pattern of results also emerged when we analyzed responses from children whose parents were not incarcerated ($p<.001$, $OR=6.75$). No other comparisons reached significance ($ps\geq.065$, $ORs\leq 4.50$; Fig. 2.3).

Table 2.2

<u>Coding for “Why do you Think People Break the Law?” Question</u>		
<u>Codes</u>	<u>Code Descriptions</u>	<u>Example Quotes</u>
Internal stable characteristics	References internally-focused, inherent, stable properties	“Because their heart is different” (child whose parent is not incarcerated) “They’re not smart people” (child of incarcerated parent)
Internal temporary characteristics	References internally-focused, potentially changeable characteristics	“Because people don’t <i>feel</i> like listening to the laws” (child whose parent is not incarcerated) “Some people don’t <i>care</i> about laws” (child of incarcerated parent)
Behavioral factors (self)	References people’s own observable actions, behaviors	“Because they don’t do the stuff that the police tells them to do” (child whose parent is not incarcerated) “They chose to do it” (child of incarcerated parent)
Behavioral factors (others)	References others’ actions, behaviors, or influence of another person or group of people	“Because other people have been bad to them” (child whose parent is not incarcerated) “They learned from other people that that’s good” (child of incarcerated parent)
Societal factors	References externally-focused, societal factors	“Don’t have money to survive” (child whose parent is not incarcerated) “They do it for very good reason. If poor, for their family because they have no job” (child

whose parent is not
incarcerated)

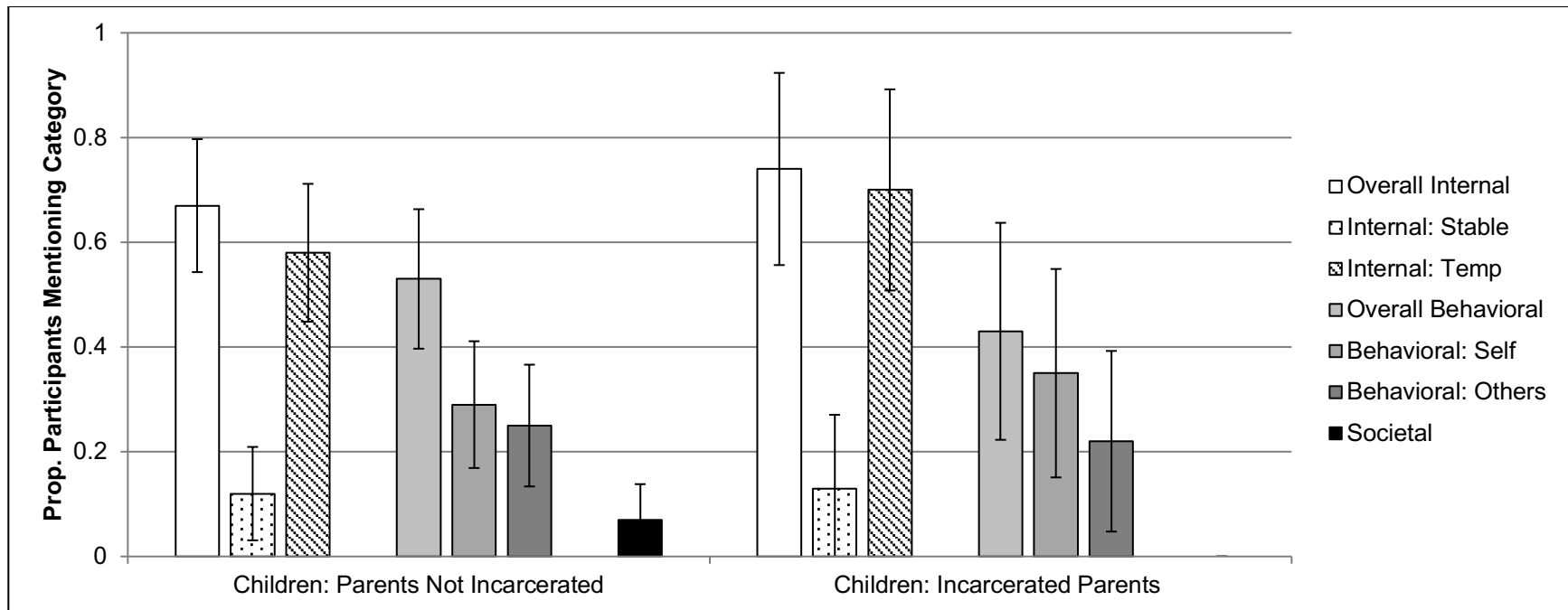


Fig. 2.3. Proportion of participants who made internal, behavioral, and societal attributions when explaining why people might break the law, Study 2. The “overall internal” category was coded as present if the participant provided at least one internal-stable explanation or at least one internal-potentially temporary explanation. The “overall behavioral” category was coded as present if the participant provided at least one behavioral-self explanation or at least one behavioral-others explanation. Error bars represent 95% confidence intervals.

Closed-Ended Essentialism Measure. We averaged responses to individual items such that a score of 1 indicated the lowest possible essentialism and a score of 3 indicated the highest possible essentialism. We then analyzed these scores using a 2 (Participant Group: children whose parents were not incarcerated vs. children of incarcerated parents) x 4 (Target Description: broke the law vs. does good things vs. does bad things vs. does shy things) mixed ANOVA with repeated measures on the second factor. This analysis revealed a main effect of Target Description ($F(2.65, 209.45)=33.03, p<.001, \eta_p^2=.30$). Neither the main effect of Participant Group ($F(1, 79)=.73, p=.397, \eta_p^2=.01$) nor the Participant Group x Target Description interaction ($F(2.65, 209.45)=1.50, p=.221, \eta_p^2=.02$) reached significance.

To further investigate the main effect of Target Description, we compared each target with each other target. This resulted in six comparisons; therefore, p values needed to be .008 or lower to pass the Bonferroni-corrected significance threshold (see Fig. 2.4). These analyses could detect relatively “small” effect sizes (Cohen’s $d=.31$); all significant pairwise comparisons yielded effect sizes above these thresholds (For consistency across analyses, we report effect sizes using partial eta squared for all analyses below; see Supplemental Materials for the Cohen’s d associated with each pairwise comparison). Overall, children viewed performing good behaviors in more essentialist terms than breaking the law ($F(1, 81)=66.80, p<.001, \eta_p^2=.45$), performing bad behaviors ($F(1, 82)=53.87, p<.001, \eta_p^2=.40$), and performing shy behaviors ($F(1, 80)=25.67, p<.001, \eta_p^2=.24$). Moreover, children viewed performing shy behaviors in more essentialist terms than both breaking the law ($F(1, 80)=20.86, p<.001, \eta_p^2=.21$) and performing bad behaviors ($F(1, 80)=11.41, p=.001, \eta_p^2=.13$). Children’s views of breaking the law and performing bad behaviors did significantly not differ from one another ($F(1, 81)=.11, p=.740$,

$\eta_p^2=0$).

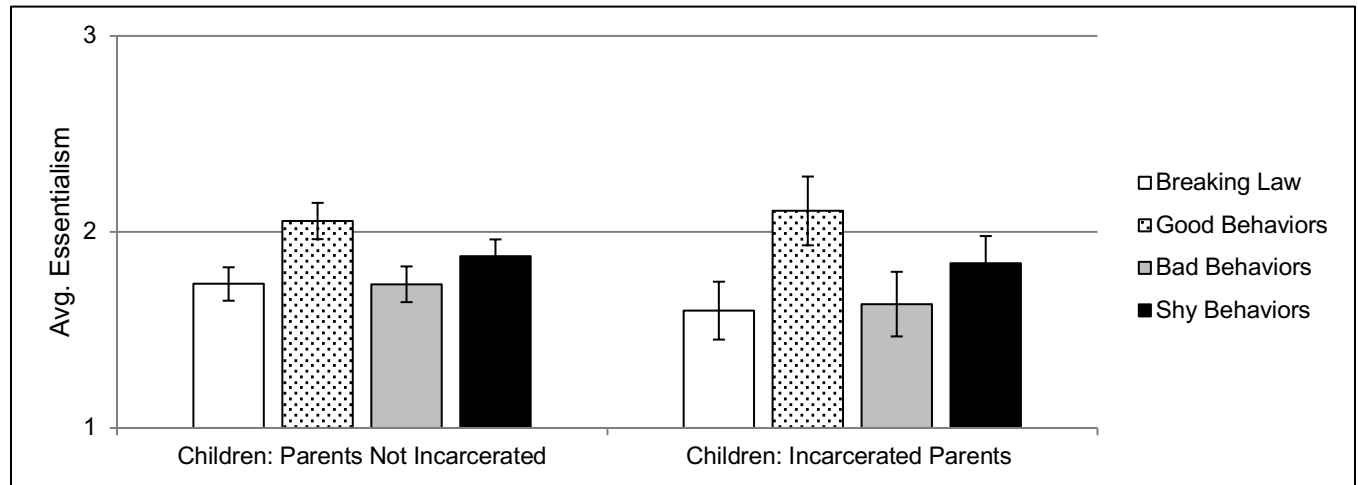


Fig. 2.4. Average essentialism scores, Study 2. Error bars represent 95% confidence intervals.

Discussion

Study 2 investigated how children whose parents were not incarcerated and children of incarcerated parents view the criminal justice system. Several notable findings emerged.

First, children of incarcerated parents were more likely to reference internal and behavioral explanations than societal explanations when discussing law-breaking. Further, children of incarcerated parents were more likely to attribute law-breaking to potentially temporary characteristics than stable internal characteristics. Strikingly, this pattern also emerged when we investigated responses from children whose parents were not incarcerated. No significant differences emerged between the two groups of children. However, null effects are difficult to interpret; it is possible that the two groups of children actually do think about law-breaking differently, and the current work failed to capture this difference.

A priori, one might have expected a different pattern of results to emerge within each group because children of incarcerated parents, versus children whose parents were not incarcerated, have had more experience with a significant figure who is in jail or prison.

Additionally, the current samples differed in ways that reflect the demographics of individuals involved in the justice system (e.g., the proportion of White participants was higher in the sample of children whose parents were not incarcerated than among children of incarcerated parents), and such differences may have led to different patterns within each group of children.

Nevertheless, children of incarcerated parents may hear generic messages when learning about punishment and incarceration from adults (for evidence that adults routinely use generic language with children, see Gelman et al., 2005, 2008). In turn, these generic statements may license the inference that punished individuals have an internal “essence” (Rhodes et al., 2012). Messages about incarceration may be more influential than children’s personal experiences, leading to a similar pattern of results within each group.

Second, more children referenced internal factors when discussing law-breaking compared to incarceration. For example, 68% of children whose parents were not incarcerated attributed law-breaking to an internal factor in Study 2. However, only 38% of children attributed incarceration to an internal factor in Study 1. This result suggests that children may have spontaneously mentioned and agreed with behavioral causes for incarceration (Study 1) while actually conceptualizing incarceration as being the result of a multi-factor causal chain (internal qualities cause behaviors; in turn, behaviors cause incarceration). This interpretation is consistent with work suggesting that children view behaviors and internal characteristics as closely linked (e.g., Liu et al., 2007). However, the present data suggest that the degree of overlap between children’s concepts of behaviors and internal characteristics is partial, not full. As previously mentioned, children in Study 1 indicated greater agreement with behavioral rather than internal explanations for incarceration; this suggests that children understand the difference between internal qualities and behaviors.

In addition to the overall increase in internal attributions across studies, participants in Study 2 also referenced potentially temporary characteristics such as thoughts and desires. One possibility is that asking specifically about behaviors, which are fleeting by nature, might facilitate thoughts of other potentially temporary characteristics. If this is the case, then describing incarceration in terms of behaviors may reduce stigma against people who have had contact with the justice system by leading individuals to consider changeable actions rather than the unchangeable (and often perceived to be bad) essence of people who have become involved in the justice system. Future work can test this possibility, which we discuss further in the General Discussion.

Third, children in Study 2, like the children and adults in Study 1, rarely referenced societal factors such as racism or economic inequality. Given that different factors (development, parental incarceration) did not significantly influence the extent to which participants linked incarceration (Study 1) and law-breaking (Study 2) with societal factors, it is possible that the tendency to underestimate the extent to which societal factors cause negative outcomes is relatively early-emerging and occurs in diverse domains. This possibility is supported by previous research demonstrating this phenomenon in other domains and at different points in development (e.g., Kraus et al., 2017; Leahy, 1983). The consistency of this finding across both studies rules out the possibility that asking about individuals (Study 1) as opposed to people in general (Study 2) skewed the results of Study 1. However, the lack of societal explanations in the present work may be influenced by other factors; see General Discussion for more elaborated discussion on this point.

Finally, although participants demonstrated some degree of essentialism regarding law-breaking on the closed-ended essentialism measure, they viewed this behavior in less essentialist

terms than positively-valenced behaviors or shy behaviors (which do not have moral valence). This finding is consistent with other work showing that individuals—especially children—view others optimistically (e.g., by expecting them to perform good behaviors even if they have previously transgressed, Aloise, 1993; Boseovski, 2010; Heiphetz, in press; Lockhart, Chang, & Story, 2002; Tasimi, Gelman, Cimpian, & Knobe, 2017). Here, participants appeared to judge that people who do good things would continue to do so in the future, whereas people who committed transgressions (including breaking the law and also including doing “bad things” in general) potentially change over time. Although children appear to readily draw inferences about negative internal characteristics on the basis of contact with the justice system, they also appear to optimistically believe that such characteristics can change over time.

General Discussion

The present work examined the emergence of punishment-related concepts in two complementary ways. Study 1 investigated this topic developmentally by asking which components of children’s punishment-related concepts remain into adulthood and which change over the course of development. Children, like adults, readily attributed incarceration to behavioral factors and did not link incarceration with societal factors. However, unlike adults, children readily attributed incarceration to internal factors. Study 2 built on the results of Study 1 by testing the extent to which personal experience with the justice system shapes the emergence of punishment concepts in childhood. Specifically, Study 2 tested both children of incarcerated parents and children whose parents were not incarcerated. Both groups of children were more likely to attribute law-breaking to internal and behavioral factors than societal factors. Further, when responding to a close-ended measure of essentialism, both groups of children viewed law-breaking as somewhat driven by internal, unchanging factors. Moreover, both groups of children

were more likely to view positive behaviors (doing good things) in more essentialist terms than negative behaviors (law-breaking, doing bad things).

Taken together, the present work makes two main contributions to the study of moral cognition. First, the current findings suggest that “end-state” punishment concepts are comprised of two co-existing bundles of concepts: those that have remained stable since childhood and those that have changed over the course of development. Specifically, Study 1 suggests that the propensity to attribute punishment to behavioral factors and not to societal factors emerges relatively early in development and remains into adulthood. Moreover, the results of Study 1 suggest that reliance on internally-focused explanations for punishment decreases between childhood and adulthood.

While the present work did not test why this latter change might occur, at least two possibilities exist. One possibility is that this change is the result of social learning. As children grow into adults, they may learn that United States law justifies punishment on the grounds of behavior and not internal characteristics. In turn, the link between punishment and internal characteristics may weaken. Moreover, throughout development, children may come to learn that the law often demonstrates an “outcome bias” in punishment decisions (Cushman et al., 2009), sanctioning people more harshly for harmful albeit accidental outcomes (e.g., second degree murder) than failed attempts to harm (e.g., attempted murder). Due to increased knowledge about these norms, people may come to reduce their use of internal explanations for punishment. Another possibility, in addition to social learning, is that age-related changes in cognition may shape punishment concepts across development. For instance, as discussed above, children are more likely than adults to attribute a host of properties to internal, unchanging “essences” (e.g., Chalik et al., 2017; Heiphetz, in press; Taylor et al., 2009). The decrease in reliance on internal

explanations across development could reflect a more domain-general decrease in attributing phenomena to internal causes. Future research can examine the extent to which social learning and changes in cognition—among other factors—drive changes in punishment concepts across development.

Second, the present work clarifies the role of personal experience with the justice system in shaping early punishment-related concepts. Drawing on past scholarship suggesting that increased contact with members of a particular group can alter essentialist views of that group's members (e.g., Roberts & Gelman, 2016; Smyth et al., 2017), it was possible that different patterns of results would emerge among children of incarcerated parents and children whose parents were not incarcerated. However, a separate literature highlighting the influence of social input on children's concepts (e.g., Gelman, 2009) suggests that a similar pattern of results could emerge among each group of children. The present work marshaled support for the latter possibility. One interpretation of this finding is that children's propensity to make internal attributions is more sensitive to the information they receive from social input (e.g., listening to others) than to a prolonged relationship with only one member of the relevant group. More specifically, it is possible that the propensity to link punishment with internal characteristics during childhood may be driven by *how* adults communicate with children. Adults often use generics—grammatical forms that convey a property that generalizes to an entire category, such as “girls like pink”—when speaking with children (e.g., Gelman et al., 2005; Gelman et al., 2008). Thus, it is possible that adults use similar language when talking to children about punishment (e.g., “bad people go to prison”). Because generic statements lead children to hold essentialist views about the category being described (Rhodes et al., 2012), it is possible that the use of generic language underlies similarities between groups of children in the present work.

Because the current work did not directly test the role of generic language in shaping children's punishment concepts, future research can more directly test this possibility by observing how adults communicate with children about punishment and how these messages may, in turn, shape children's perspectives.

For a number of reasons, it is particularly surprising that participants failed to reference societal factors when discussing incarceration or law-breaking. Societal inequality is strikingly high in the United States, particularly within the criminal justice system (e.g., Alexander, 2012; Eberhardt et al., 2006; Eubanks, 2018; Forbes, 2016; Glaser, 2015; Harcourt, 2007). As such, it is startling that American adults seem largely unaware of the scope and deleterious consequences of societal inequality in this context. Though children have less social experience than adults, it is still somewhat surprising that they did not attribute incarceration or law-breaking to societal factors. Children are especially likely to hold positive views of others (e.g., Boseovski, 2010) and therefore could have been especially motivated to attribute incarceration and law-breaking to factors that would maintain positivity toward people impacted by the justice system. According to research from the attribution theory literature (e.g., Rudolph et al., 2004), one way to do so is to attribute stigmatized qualities (e.g., incarceration status) to externally-oriented, uncontrollable variables (e.g., societal factors) as opposed to controllable individual-level factors (e.g., bad behaviors). Following this reasoning, children could have been especially likely to mention societal factors in order to maintain their positive views of the people they evaluated. Moreover, given that children of incarcerated parents are especially likely to experience societal-level inequalities (e.g., poverty, homelessness, Clear, 2007; Huebner & Gustafson, 2007; Wildeman, 2014), one may have expected that they would be especially likely to link punishment with societal factors.

What might explain the absence of societal explanations throughout the present studies? One possibility is that children and adults experienced difficulty explaining how societal factors are linked with punishment. There are several causal links between societal factors and incarceration. For example, consider a Black adolescent who was arrested for dealing drugs. Upon further inspection, it turns out that he was engaging in this behavior to help his family pay for basic necessities and was the target of racialized policing practices; his White peers were not arrested for the same action (for additional evidence that police arrest White adolescents less frequently than Black adolescents despite similar rates of law breaking across groups, see Alexander, 2012; Forman, 2017; Joseph & Pearson, 2002). While this person's incarceration was certainly influenced by societal factors (e.g., poverty, racism), the most proximal causal of his incarceration was his behavior. Given that children and adults tend to provide simple explanations for events (Bonawitz & Lombrozo, 2012; Lombrozo, 2007), it is possible that they simply agreed with—and generated—explanations that are most causally linked with punishment.

While this idea should be examined more thoroughly in future research, the consistent paucity of societal explanations across Studies 1 and 2 partially rules out this possibility. By asking about behaviors (Study 2) as opposed to incarceration (Study 1), we effectively increased the causal proximity between societal factors and the outcome being examined. If the dearth of societal explanations in Study 1 was simply due to participants endorsing behavioral explanations while nonetheless conceptualizing behaviors as stemming from societal factors, we might have expected the proportion of societal explanations to increase in Study 2. However, this was not the case, as participants in Study 2 did not readily attribute law-breaking to societal factors. Another possible reason for the lack of societal explanations across studies is that the

tendency to reference societal inequalities when explaining social phenomena may be moderated by factors that were not a central aspect of the current research. For instance, among adults, the tendency to use societal explanations may be associated with racial group membership (Hunt, 1996). It is difficult to test for this possibility in our data because of the extremely low rate at which participants spontaneously generated and agreed with societal explanations. However, had our sample included more Black people, societal explanations may have been more prevalent. Regardless as to why participants did not reference societal factors when discussing law-breaking or incarceration, the present work dovetails with other research suggesting that people tend to underreport the role of societal factors (e.g., economic inequality) in causing negative outcomes in people's lives (e.g., Davidai & Gilovich, 2015; Kraus et al., 2017; Leahy, 1983; Norton & Ariely, 2011).

Limitations and Directions for Future Research

The present work sheds light on an understudied topic within the social psychological literature (incarceration) and provides critical insight into the role that two factors (age, parental incarceration status) might play in the structure of punishment-related concepts. However, there are key limitations to the present work. Views of punishment and the criminal justice system may hinge on factors not explicitly tested in this work. As previously mentioned, the negative consequences of incarceration disproportionately accrue to members of marginalized groups, including racial minorities (e.g., Alexander, 2012) and poor people (e.g., Eubanks, 2018). Thus, future work could examine the role that identification with each of the aforementioned groups might play in the development of punishment-related concepts. Another fruitful avenue for future research could examine how the experience of intersecting social identities (e.g., being a child of incarcerated parents growing up in a rural or an urban place) might shape how people

conceptualize punishment. Past work on intersectionality suggests that the experience of having an incarcerated parent in a rural environment, for example, is not tantamount to the experience of having an incarcerated parent plus the experience of growing up in a rural area (e.g., Crenshaw, 1989/1993; Purdie-Vaughns & Eibach, 2008). Rather, intersecting identities can create emergent realities. All of the children of incarcerated parents interviewed for this project were growing up in an urban area, and their experiences may differ from those of children growing up in other locations. Future research can examine how such experiences, as well as other intersecting identities (e.g., race, gender, class), shape punishment-related concepts.

Another avenue for future research concerns the issue of societal explanations. We interpret the present results to suggest that neither children nor adults in our samples readily linked incarceration or law-breaking with societal factors. However, an alternate possibility exists: participants may not have agreed with the societal explanation we used (poverty) because they viewed other types of societal factors (e.g., racism) as more likely to cause incarceration. This account seems unlikely given that participants could have referenced such factors when responding to open-ended questions. As previously mentioned, participants rarely referenced any type of societal factor when discussing incarceration or law-breaking, suggesting that they may not view either as linked with societal factors broadly construed (though see Vasilyeva, Gopnik, & Lombrozo, 2018 for evidence that children and adults are able to engage in structural reasoning when thinking about other social phenomena). Future work can test children's and adults' agreement with different types of societal explanations, including those referencing race-based inequality.

Finally, future work can investigate the consequences of adopting essentialist perspectives of incarceration and punishment more broadly. In rare instances, essentialism

increases positivity; for example, essentialist views of sexual orientation predict more positive attitudes toward gay men and lesbians (e.g., Haslam & Levy, 2006). However, the majority of prior work on essentialism's consequences has demonstrated negative outcomes for essentialized group members. For example, essentializing race increases comfort with racial inequality (Williams & Eberhardt, 2008), and essentializing gender increases acceptance of gender stereotypes (Brescoll & LaFrance, 2004). Among children, essentialist views of a particular group are linked with increases in stereotyping (e.g., Pauker, Ambady, & Apfelbaum, 2010), prejudiced attitudes (e.g., Diesendruck & Menahem, 2015), and stinginess (Rhodes, Leslie, Saunders, Dunham, & Cimpian, 2018) toward members of that group. Perhaps most closely related to the current work, recent scholarship (Heiphetz, in press) suggests that essentialist views of immoral character decrease generosity toward essentialized targets. Thus, essentialist explanations regarding punishment may increase negativity toward people receiving punishment. If this is the case, then providing non-essentialist explanations for everyday punishments may allow individuals to modulate the punishment's severity. For example, children may feel better if their parents explicitly communicate that they are receiving punishment because they have done something wrong and not because they are bad people. Further, non-essentialist explanations may also reduce the stigma faced by individuals who have received more severe punishments, such as incarceration.

Conclusion

Across two studies, we investigated the emergence of punishment-related concepts. Children largely conceptualized incarceration as stemming from both internal and behavioral factors, whereas adults primarily attributed incarceration to behavioral factors. Neither children nor adults readily generated or agreed with societal explanations for incarceration. These

findings suggest that certain components of children’s punishment concepts (i.e., the link between punishment and behavioral—but not societal—factors) remain stable over the course of development whereas other components (the link between punishment and internal factors) change with age. Moreover, we found that the structure of early punishment concepts was similar across groups of children with different experiences with the criminal justice system. Children of incarcerated parents, like children whose parents were not incarcerated, readily referenced internal and behavioral reasons when discussing why people break the law. However, neither group of children was likely to reference societal factors when reasoning about law-breaking. Taken together, these studies marshal evidence suggesting that (1) the conceptual link between punishment and behaviors is stable across development, (2) the link between punishment-related concepts and internal factors wanes across development, and (3) regardless of age or personal relationships with incarcerated individuals, people may not readily report that societal factors play a role in law-breaking and punishment. These findings highlight the importance of research programs that cut across areas of study (e.g., social and developmental psychology) and point to the need for explicit education regarding the role of social inequality in some forms of punishment.

Introduction to Chapter 3

Chapter 2 examined how laypeople interpret punishment's past-oriented messages. Overall, children were especially likely to understand punishment as conveying negative information about a person's moral history (i.e., that, prior to receiving punishment, a person had negative moral character). Punishment's messages can have important social ramifications, such as shaping community members' responses to individuals who are currently implicated in the criminal legal system (Kahan, 1996; Kleinfeld, 2016; Yankah, 2004). For instance, messages linking punishment with internal moral character may lead laypeople to view punished individuals in an extremely negative light—as part of a “permanent criminal caste” (Yankah, 2004, p. 1027), as “forever outside and beneath [the] community” (Kleinfeld, 2016, p. 1036), and as human “trash” (Van Cleve, 2016, p. 59). However, much of this past work is theoretical in nature, leaving it unclear how punishment's messages might actually shape social cognition. As such, Chapter 3 built upon Chapter 2 by examining how different messages about a punished individual's past shape people's attitudes toward such individuals in the *present*.

Chapter 3

Language Shapes Children's Attitudes: Consequences of Internal, Behavioral, and Societal Information in Punitive and Non-Punitive Contexts

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Abstract

Research has probed the consequences of providing people with different types of information regarding why a person possesses a certain characteristic. However, this work has largely examined the consequences of different information subsets (e.g., information focusing on internal versus societal causes). Less work has compared several types of information within the same paradigm. Using the legal system as an example domain, we provided children ($N=198$ 6- to 8-year-olds) with several types of information—including information highlighting internal moral character, internal biological factors, behavioral factors, and societal factors—about why a specific outcome (incarceration) might occur. We examined how such language shaped children's attitudes. In Study 1, children reported the most positivity toward people who were incarcerated for societal reasons and the least positivity toward people who were incarcerated for their internal moral character; attitudes linked with behavioral information fell between these extremes. Studies 2a-2b suggested that Study 1's effects could not be fully explained by participants drawing different inferences about individuals in Study 1. Study 3 replicated Study 1's results and showed that information linking incarceration with internal biological factors led to more positivity than information linking incarceration with internal moral character. Finally, Study 4 suggested that the patterns found in Studies 1 and 3 generalize to non-punitive contexts. Moreover, Study 4 found that the effects in Studies 1 and 3 emerged regardless of whether information was communicated via explanations or descriptions. These results demonstrate that how we express our beliefs about social phenomena shape the realities in which others live.

Keywords: moral cognition; punishment; social cognition; social cognitive development

Language shapes children’s attitudes: Consequences of internal, behavioral, and societal information in punitive and non-punitive contexts

In 2013, *Sesame Street* aired an episode starring three Muppet Kids—Abby, Rosita, and Alex. During this episode, Alex told his Muppet friends that his father was incarcerated. After learning this information, Abby and Rosita promptly asked Alex *why* his father was incarcerated. Such dynamics are not limited to Muppet Kids, as actual children also seek out information about why social phenomena occur from more knowledgeable social partners (Callanan & Oakes, 1992; Legare, Wellman, & Gelman, 2009; Lombrozo, 2012). Importantly, the types of information children hear about why an event occurs can shape their social cognition (e.g., their attitudes toward a given individual, Heiphetz, 2020; Rhodes & Mandalaywala, 2017). Extrapolating to the current example, any information that Alex might have provided for the reason behind his father’s incarceration could have influenced Abby’s and Rosita’s attitudes toward Alex’s father. However, it remains unclear how different types of information about why someone might be incarcerated shapes actual children’s attitudes.

Study 1 addressed this topic by providing children with different pieces of information about why someone might be incarcerated (i.e., information about internal, behavioral, and societal factors). We subsequently examined how each type of information shaped children’s attitudes toward incarcerated people. Studies 2a-2b tested two potential explanations for why participants reported different attitudes across conditions in Study 1. Namely, Study 2a used a between-participants design to examine the extent to which participants’ attitudes toward a given individual in Study 1 (which used a within-participants design) influenced their attitudes toward

individuals presented later in the study. Study 2b investigated the extent to which participants drew different inferences about wrongdoing across the various conditions used in Study 1. Study 3 built on these findings by examining the extent to which the pattern of results from Study 1 were unique to the specific pieces of information provided in that study, or whether the pattern of results would generalize to differences pieces information of the same type. Finally, Study 4 probed the extent to which the pattern of results found in Studies 1 and 3 generalized to contexts outside of incarceration. Study 4 also examined the extent to which the effects documented in Studies 1 and 3 were specific to information being conveyed via a single linguistic form (i.e., explanations) or whether such effects would also emerge if information was conveyed via another linguistic form (i.e., descriptions).

Information About the Causes of Human Characteristics

Humans are motivated to learn about the world around them (Gopnik, 1998; Lombrozo, 2012). Soon after articulating their first words, children begin seeking out information about why things are the way that they are in conversations with more knowledgeable individuals (Callanan & Oakes, 1992; Frazier et al., 2009; Greif et al., 2006). Seeking out such information can be consequential, as information about the causes of socially relevant phenomena (e.g., why a person possesses a certain characteristic) can shape attitudes and behaviors toward that person (for reviews, see Heiphetz, 2020; Rhodes & Mandalaywala, 2017).

Much work examining this topic has focused on the social ramifications of providing people information about internal causes for various human characteristics. Broadly, internal information focuses on causes residing within an individual. Information about internal causes can either focus on *temporary* properties—including mental and emotional states, desires, preferences, and whims—or *stable* properties such as genetics, traits, and “essences.” Although

internal properties can be temporary or stable, relatively more studies have focused on the consequences of attributing human characteristics to stable (e.g., Heiphetz, 2019; Hussak & Cimpian, 2018; Mandalaywala et al., 2018, 2019; Pauker et al., 2010, 2016; Rhodes et al., 2018), versus temporary (e.g., Van Wye et al., in press), internal causes. To build on prior work in this area, we also focused on the ramifications of providing people with information about stable internal causes for social phenomena. For simplicity, we refer to this type of information as “internal” information.

Though past work has largely focused on the consequences of conceptualizing human characteristics as stemming from internal factors, some work has also emphasized the consequences of conceptualizing human characteristics as stemming from behavioral and, separately, societal factors. In line with prior scholarship, we conceptualize behavioral information as linking a given outcome with a person’s own observable actions (e.g., Dunlea & Heiphetz, 2020) and societal information as linking a given outcome with extrinsic or structural constraints acting on an individual (e.g., Flanagan et al., 2014; Vasilyeva et al., 2018). Thus, whereas internal and behavioral information focuses on *individual-level* causes, societal information focuses on causes external to or beyond the individual.

In most domains where researchers have examined the social ramifications of internal information, this type of information has typically led to negative consequences for children’s social cognition (for a notable exception, see Carvalho et al., in press). For instance, information suggesting that racial, ethnic, nationality, and gender category membership stem from internal causes—specifically, ones that are biologically based, immutable, and intrinsic in origin—may underlie negativity toward these groups (Diesendruck & Menahem, 2015; Hussak & Cimpian, 2018; Mandalaywala et al., 2018, 2019; Pauker et al., 2016; Rhodes & Mandalaywala, 2017).

Information about internal causes for human characteristics may promote intergroup negativity via several mechanisms, including by accentuating perceived differences between social groups (e.g., Roberts et al., 2017), construing perceived between-group differences as objective and natural (e.g., Gaunt, 2006), and stressing within-group homogeneity (e.g., Yzerbyt et al., 2001).

While several lines of research suggest that describing human characteristics as stemming from internal factors has negative social ramifications, researchers have leveraged different comparisons when evaluating the relative impact of such information. Typically, this work has compared different subsets of information. Some lines of work have tested the consequences of internal information about a given characteristic alongside a control group that did not receive any information about the causes of that characteristic (e.g., Bell & Morgan, 2000). For example, in one line of work (Potter & Roberts, 1984), children in the experimental group learned that certain chronic illnesses (e.g., epilepsy) stem from internal biological causes, whereas children in the control group did not receive any information about the origin of such illnesses. More recent research has compared the consequences of two types of information within the same paradigm (e.g., Hussak & Cimpian, 2018; Levy & Dweck, 1999; Mandalaywala et al., 2018; Rhodes et al., 2018). For instance, in one line of work examining the consequences of internal versus societal information (Heiphetz, 2019), children learned about two morally “bad” individuals; the experimenter attributed one individual’s badness to stable, inherent features and the other individual’s badness to societal factors (i.e., the actions of other people living in society). Moreover, another line of work examined the consequences of providing internal versus behavioral information about why someone might be overweight (e.g., Carvalho et al., in press).

These past findings provide a crucial foundation to understanding how different types of information about why social phenomena occur shape children’s social cognition. However, as

previously mentioned, most of these programs of research have focused on distinct subsets of information types (e.g., information type “X” versus information type “Y” without comparing to information type “Z”), making it difficult to observe differences among various types of information. The current work aimed to garner a clearer understanding of the relation among various types of information by probing the social ramifications of internal, behavioral, and societal information within the same paradigm. Thus, one main contribution of the present work includes providing a more robust understanding of the relation among various types of information.

Studying The Consequences of Different Types of Information Within the Criminal Legal System Context

The current work used the criminal legal system as an example domain in which to study the consequences of different types of information about why a specific socially relevant outcome might occur. We did so because people often reference different types of information when conceptualizing why a given outcome within this domain—namely, incarceration—occurs.

People often conceptualize punishment as stemming from stable, internal causes (for a review, see Dunlea & Heiphetz, 2021). Predominant cultural narratives in the United States often portray punished individuals as “bad apples [that] can never be made good” (Dodge, 2008, p. 575). Moreover, such narratives often imply that people come in contact with the legal system because they are “bad guys” (Van Cleve, 2016, p. 57) with inherent “moral poverty” (Dilulio et al., 1996, p. 28) and that such individuals cannot change for the better over time. Put differently, predominant cultural narratives in the United States often pinpoint one cause of legal system contact as residing *within* individuals (moral character).

Although people often attribute punishment to internal factors, theorists and laypeople alike also readily link punishment with individuals' behaviors. Theorists focusing on criminal law in the United States context assert that people should be punished for behaviors (*People v. White*, 1840). In accord with such legal prescriptions, recent work suggests that laypeople reference behavioral factors when reasoning about why others might receive punishment (Dunlea & Heiphetz, 2020).

Finally, some scholars conceptualize legal punishment as stemming from societal factors. For example, scholars have recently highlighted how societal factors such as poverty (e.g., Eubanks, 2018) and racism (e.g., Alexander, 2012; Forbes, 2016; Van Cleve, 2016) often underlie carceral trends within the United States. This conceptualization is consistent with how societal information is typically conveyed in developmental psychology research (e.g., Vasilyeva, 2018) because it represents incarceration as the outcome of societal forces that are not tied to any specific individual.

Thus, people's notions about why someone might receive punishment are far from monolithic. Although people sometimes link punishment with stable, internal factors residing within an individual, they also readily link punishment with a person's own behaviors (e.g., Dunlea & Heiphetz, 2020). Moreover, people sometimes link punishment with broader factors that are extrinsic to the self (e.g., Van Cleve, 2016). Couching the current work within the context of the criminal legal system afforded us the opportunity to provide participants with different types of information about why an individual might be incarcerated. In doing so, we extended prior literature by probing the social ramifications of several different types of information about the causes of socially relevant phenomena (internal, behavioral, societal)

within the same experimental paradigm. As previously mentioned, this was one of the primary theoretical contributions of the present work.

Couching the current work within the criminal legal system context also afforded us the opportunity to test the effectiveness of linking incarceration with societal factors as a way of alleviating negativity toward incarcerated individuals. Typically, people exhibit more positivity toward members of stigmatized social groups when the stigmatized characteristic in question is attributed to societal versus individual-level (internal, behavioral) causes (e.g., Cozzarelli et al., 2001; Kluegel & Smith, 1986; Schuman et al., 1997). However, it remains unclear whether a similar pattern of results might emerge within the context of the criminal legal system. Past work led to two competing possibilities.

On the one hand, the positivity typically associated with linking a stigmatized characteristic with societal factors may not emerge within the criminal legal context. If this is the case, elementary schoolers may report similar levels of negativity toward those whose incarceration is attributed to societal versus individual-level factors. Incarcerated individuals are “one of the most stigmatized groups in society” (Moore et al., 2013, p. 527). Importantly, negativity toward incarcerated individuals is robust even among children. Six- to-8-year-olds—the age range tested in the current work—report a great deal of negativity toward incarcerated individuals (Dunlea & Heiphetz, 2020). Indeed, children’s negativity toward incarcerated individuals is so strong that it spills over into their judgments of peers whose parents are incarcerated (Chui, 2010; Saunders, 2018). Importantly, some work suggests that children more readily attend to negative information over positive or neutral information (Baltazar et al., 2012; Kinzler & Shutts, 2008; Vaish et al., 2008). Thus, even when presented with societal information about why someone might come in contact with the criminal legal system, children’s negativity

toward people who have received punishment may overwhelm the positivity typically associated with societal information. Such a finding would likely stem from children's negativity bias as opposed to children doubting that structural factors can underlie socially-relevant outcomes, since elementary schoolers are capable of recognizing how structural and situational factors underlie different types of social phenomena (Kalish & Shiverick, 2004; Peretz-Lange & Muentener, 2019; Rizzo & Killen, 2020; Vasilyeva et al., 2018).

On the other hand, the positivity typically associated with societal attributions may also emerge within the criminal legal context. If this is the case, elementary schoolers may report more positivity toward people whose punishment is attributed to societal, versus individual-level, factors. As outlined above, attributing stigmatized characteristics to societal rather than individual-level factors typically predicts more positivity toward people with those characteristics (e.g., Cozzarelli et al., 2001; Kluegel & Smith, 1986). Given that this effect has emerged in several domains, a similar pattern may occur in the criminal legal context. This result would suggest that the positivity linked with societal information may be so strong that it overpowers elementary schoolers' negativity toward people who have come in contact with the criminal legal system. Testing between these two competing possibilities is another main theoretical contribution of the current work.

To address the topics discussed above, we recruited 6- to 8-year-old children. Testing elementary schoolers was important for several reasons. First, testing children in this age range allowed us to extend, and compare our results with, previous work examining the downstream social consequences of providing people with different types of information about the causes of human characteristics (e.g., Carvalho, in press; Heiphetz, 2019). Second, children of this age are capable of understanding information about structural factors underlying socially-relevant

outcomes (Peretz-Lange & Muentener, 2019; Vasilyeva et al., 2018). As such, we were able to examine how societal information, as well as information about internal and behavioral causes, influenced children's attitudes. Third, past work suggests that children in this age range can reason about—and respond to experimental items regarding—people who have been implicated in the criminal legal system (e.g., Bregant et al., 2016; Dunlea & Heiphetz, 2020, in press; Dunlea et al., 2020). Finally, around this age, children increasingly begin to report negativity toward out-group members (Buttelmann & Böhm, 2014; Liberman et al., 2018). Testing children of this age allowed us to investigate one potential way to reduce such negativity.

Overview of Current Research

The primary focus of the current work was clarifying how different types of information about why socially relevant phenomena occur shape children's social cognition across various contexts. The main dependent variable of interest across studies was children's attitudes. Specifically, Study 1 examined how three different types of information about why someone might be incarcerated affected 6- to 8-year-olds' attitudes toward incarcerated individuals. Studies 2a and Studies 2b examined two potential explanations for why participants reported different attitudes across conditions in Study 1. Specifically, Study 2a (a between-participants design) examined the extent to which participants' attitudes toward a given individual in Study 1 (a within-participants design) influenced their attitudes toward individuals presented later in the study, while Study 2b investigated the extent to which participants drew different inferences about wrongdoing across the various conditions used in Study 1. Study 3 asked whether the pattern of results from Study 1 was unique to the specific pieces of information provided in Study 1, or whether it would generalize to different pieces information of the same type. Finally, Study 4 examined the extent to which the pattern of results found in Studies 1 and 3 would

generalize to contexts beyond incarceration. We did so by asking children about individuals who received a non-specific form of punishment (getting in trouble) and, separately, about individuals who did not receive any punishment. Study 4 also elucidated the extent to which the effects documented in Studies 1 and 3 were specific to information being conveyed via a particular linguistic form (i.e., explanations) or whether such effects would also emerge if information was communicated via descriptions.

Study 1

Study 1 investigated how different types of information about why someone might be incarcerated shape children's attitudes toward incarcerated individuals. To do so, we told elementary schoolers about three different incarcerated people and attributed their contact with the legal system to their internal moral character, their behavior, or social inequality.

Method

Participants. The final sample included 86 6- to 8-year-olds ($M_{\text{age}}=6.97$ years, $SD_{\text{age}}=.79$ years; 56% female, 42% male, 1% other, remainder unspecified; 40% White or European-American, 29% Black or African-American, 7% Asian or Asian-American, 9% multiracial, 12% other, remainder unspecified; 19% Hispanic or Latinx, 72% not Hispanic or Latinx, remainder unspecified [our demographic questionnaire asked about ethnicity separately from race]).⁷ Data from an additional two children were excluded because the child did not understand the study ($n=1$) and because the parent interfered during testing ($n=1$). We recruited children from a

⁷ Study 1 also included a sample of 123 adults whom we recruited via Amazon's Mechanical Turk (MTurk). They demonstrated a similar pattern of results as did children (reported in the main text). This finding suggests that information about why someone is incarcerated may shape social cognition similarly across development. Because a similar pattern of results emerged among both children and adults, we only recruited children in all other main studies examining how information about why socially-relevant phenomena occur shapes social cognition. For congruency across studies, we focus on only children's responses for Study 1 in the main text; see Supplementary Materials for relevant analyses with adults.

departmental database and from museums in the northeastern United States. All children received a small prize (e.g., a sticker) for participating. Several parents (seven in Study 1, eight in Study 3, and three in Study 4) reported that their child knew someone who has been incarcerated. The main pattern of results reported in each study emerged even when these participants were excluded from analyses.

Procedure. This study and all subsequent studies reported here were conducted in accordance with APA ethical standards. Procedures were approved by the IRB at the authors' institution under protocol #AAAQ8299, "The role of essentialism in children's and adults' moral cognition."

Children completed the session in a quiet room located either in a developmental psychology laboratory or in a children's museum. First, the experimenter told children that he or she would ask questions about another person and that there were no right or wrong answers. The experimenter then introduced children to a five-point scale consisting of stick figures arrayed from smallest to largest on a sheet of paper; children learned that they would convey their answers by pointing to a figure on the scale. The experimenter instructed children on how to use the scale (e.g., "If your answer is 'not at all,' you would point here," said while pointing to the smallest picture). The remaining labels were "a little bit," "a medium amount," "a lot," and "completely."

The experimenter then asked children two test questions to gauge their understanding of the scale ("Can you show me where you would point if your answer was 'not at all'?"; "Can you show me where you would point if your answer was 'a medium amount'?"). 95% of children correctly pointed to the scale floor when indicating "not at all," and 83% of children correctly pointed to the scale midpoint when indicating "a medium amount." Participants who answered

incorrectly received corrective feedback; all participants who did not answer correctly initially provided the correct answer on their second try.

Subsequently, the experimenter showed children photographs of three different individuals, one at a time, on a Power Point display. The experimenter pointed to each photograph and provided one of three pieces of information regarding why that person was incarcerated (because he was a bad person, because he did something wrong, or because he did not have very much money when he was growing up; see Table 3.1). After hearing each piece of information, participants indicated how much they liked the person and how much they wanted that person to live in their neighborhood after he left prison. The information used in the current study was adapted from prior work measuring the extent to which children agreed with different explanations for incarceration (Dunlea & Heiphetz, 2020). Here and in subsequent studies—unless otherwise noted—the order of the questions, the pieces of information regarding why an individual was incarcerated, and the photographs were counterbalanced across participants, as were pairings between photographs and pieces of information regarding why an individual was incarcerated.

Table 3.1

Information provided in Studies 1-2b.

Information Type	Specific Information
Internal moral character	“He is in prison because he is a bad person”
Behavioral	“He is in prison because he did something wrong”
Societal	“He is in prison because he didn’t have very much money when he was growing up”

The negative consequences of incarceration disparately accrue to people who have been marginalized on the basis of racial group membership (e.g., Alexander, 2012; Forbes, 2016; Van Cleve, 2016); thus, we reasoned that information about why an individual might be incarcerated may differentially affect participants' attitudes toward Black versus White individuals. For this reason, approximately half of our participants ($n=45$) saw three different White men, while the remaining participants ($n=41$) saw three different Black men; see Supplementary Materials for example stimuli for this and all subsequent studies. Based on recommendations to include approximately 50 participants per cell in psychological research (Lakens & Evers, 2014; Simmons et al., 2013), we aimed to recruit approximately 50 participants in each condition. All photographs portrayed men because most people incarcerated in the United States are male (Carson & Anderson, 2016). Photographs were taken from Kennedy and colleagues (2009) and were matched on all variables on which faces in that dataset were normed, including perceived age, familiarity, mood, memorability, and picture quality. All research materials for this and each subsequent study in the main text, as well as the scale used to elicit participants' responses, are available on an online data repository (<http://dx.doi.org/10.17632/jpdpvtv3nc.3>).

Results

Previous work has conceptualized negative attitudes as incorporating multiple components, including dislike and a desire to avoid the disfavored person or group (Allport, 1954; Pettigrew & Tropp, 2006). Participants' ratings of how much they (dis)liked each person and how much they wanted that person to live in their neighborhood after leaving prison captured both components of negative attitude. Responses to these items were positively correlated among participants for each type of information ($.33 \leq r \leq .50$, $ps \leq .002$). Therefore, we

collapsed them into one measure of attitude.⁸ Here and in all subsequent studies, we report the Bonferroni-adjusted alpha alongside uncorrected p values. See Supplementary Materials for detailed statistics, including descriptive statistics for each item in each of the studies and the p value, 95% confidence interval on the difference between means, and effect size associated with each pairwise comparison. We used the *rstatix* package for R when analyzing data for all studies (Kassambara, 2020).

We analyzed participants' attitudes using a 3 (Information Type: internal vs. behavioral vs. societal) x 2 (Incarcerated Person Race: White vs. Black) mixed analysis of variance (ANOVA) with repeated measures on the first factor (see Fig. 3.1). This analysis revealed a main effect of Information Type, $F(1.82, 152.88)=29.44, p<.001, \eta_p^2=.26$.⁹ Neither the effect of Incarcerated Person Race nor the Information Type x Incarcerated Person Race interaction reached significance ($ps \geq .130$). Given the non-significant effect of Incarcerated Person Race, we collapsed participants' responses across this variable.

To better understand the effect of Information Type, we compared how children viewed individuals after hearing each type of information. This analysis included three comparisons; therefore, p values needed to be .017 or lower to pass the Bonferroni-corrected significance threshold. Children reported more positive attitudes toward those who were incarcerated because they did not have very much money while growing up than toward those who were incarcerated because they had done something wrong and, separately, toward those who were incarcerated because they were bad people ($ps < .001$, Cohen's $ds \geq .51$). Moreover, children expressed more

⁸ We also investigated the extent to which children responded differently to the items probing how much they disliked each person and the items probing how much they wanted each person to live in their neighborhood. Here and in all subsequent studies, we did not find evidence that children responded differently across item types; see Supplementary Materials for relevant analyses.

⁹ Here and in all subsequent studies, all non-integer degrees of freedom reflect a Greenhouse-Geisser adjustment to correct for a violation of the assumption of sphericity.

favorable attitudes toward people who were incarcerated because they had done something wrong than because they were bad people ($p=.008$, Cohen's $d=.29$).

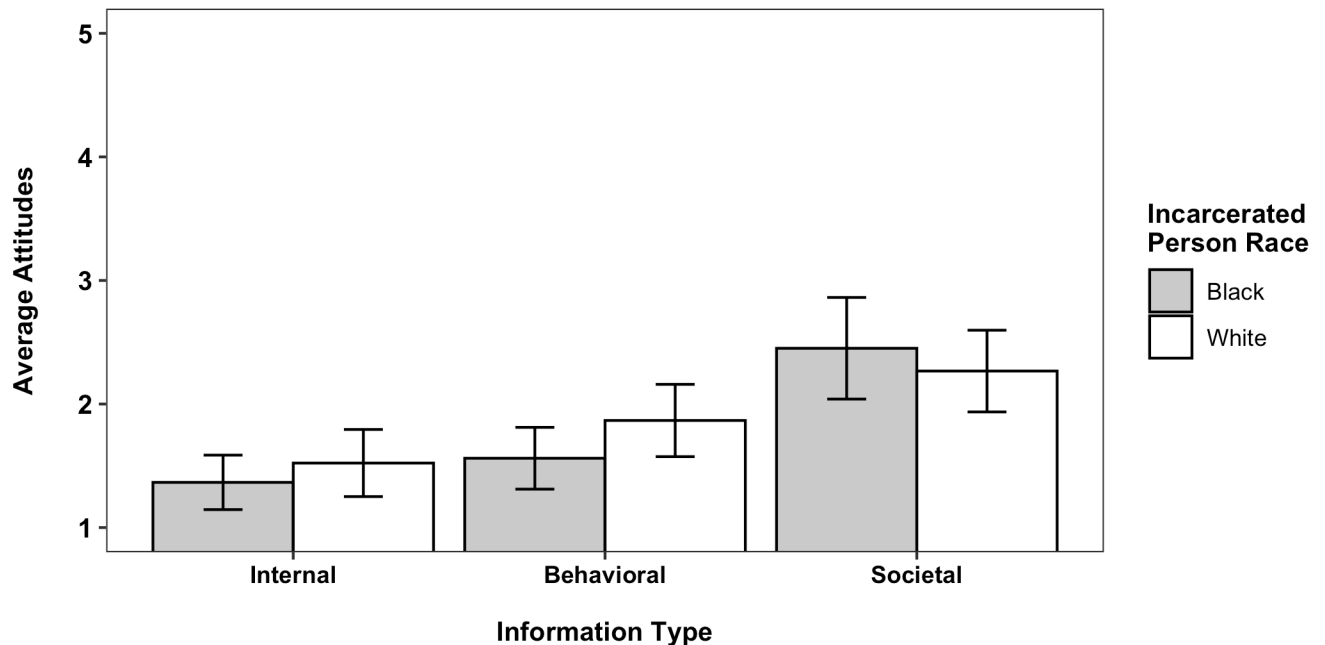


Fig. 3.1. Average attitudes toward people whose incarceration was attributed to different causes, Study 1. Higher values reflect more positive attitudes. Error bars represent 95% confidence intervals.

Discussion

Study 1 investigated how different information about why someone might be incarcerated shapes children's attitudes toward incarcerated individuals. Three main findings emerged. First, children reported less positivity toward individuals whose incarceration was attributed to internal moral character than to bad behaviors. This finding dovetails with past work demonstrating the negative consequences of internal attributions for human characteristics (e.g., Heiphetz, 2019; Hussak & Cimpian, 2018). Further, this difference indicates that children can distinguish between "being a bad person" and "doing something bad." Second, children reported more positive attitudes toward individuals whose incarceration was attributed to societal factors than

toward individuals who were incarcerated for any other reason. This finding indicates that the relative benefits of providing information about societal, versus individual-level (internal moral character, behavioral), causes emerge even in contexts associated with a great deal of negativity. Third, although the negative consequences of incarceration disparately accrue to Black people (e.g., Alexander, 2012), the race manipulation did not significantly influence the pattern of results in this study. This finding suggests that the information provided about incarceration may play a greater role in shaping children's attitudes than does the racial group membership of the individual being discussed. Nevertheless, null results are difficult to interpret; it is possible that children respond differently to Black and White individuals who have been incarcerated and that the current work failed to capture this phenomenon. Thus, caution is warranted in interpreting this result.

Study 2a

Participants in Study 1 reported divergent attitudes toward people incarcerated for different reasons. One interpretation of this pattern of results is that each type of information uniquely shaped children's social cognition. However, an alternative account is that the within-participants manipulation of information type inflated differences across conditions. While there are many benefits to within-participants manipulations (for an overview, see Charness et al., 2012), one potential drawback in the context of Study 1 is that participants' attitudes toward a given individual could have influenced their attitudes toward individuals presented later in the study. Study 2a addressed this possibility by employing a between-participants manipulation of information type. Similar patterns of results across Study 1 and 2a would suggest that the within-participants manipulation of information type in Study 1 may not wholly explain why differences across conditions emerged.

Method

Participants. An a priori power analysis performed in G*Power (Faul et al., 2007) suggested that a sample of 120 participants per between-participants condition would have 80% power ($\alpha=.05$) to detect the smallest effect size associated with a significant comparison in Study 1 (Cohen's $d=.38$). In line with this recommendation, our final sample included 347 adults between 18 and 77 years old ($M_{\text{age}}=41.23$ years, $SD_{\text{age}}=12.36$ years; 51% female, 48% male, 1% other; 82% White or European-American, 6% Black or African-American, 10% Asian or Asian-American, 1% Native American or Pacific Islander, 1% multiracial; 4% Hispanic or Latinx, 96% not Hispanic or Latinx). We over-recruited participants because we expected that some data would be unusable (e.g., due to failing an attention check question).

We recruited participants online via Amazon's Mechanical Turk, which we configured so that only United States residents whose approval rating was at least 95%, who had previously completed at least 1,000 other studies on the online platform, and who had not completed any other studies related to this project could participate. Participants received \$0.15 if they correctly answered an attention check item presented at the end of the session asking them to recall any of the items they had answered in the study. We excluded data from five additional participants because they incorrectly answered the attention check item. The pattern of results for all analyses remained unchanged when we opted not to exclude any participants.

Procedure. The procedure for Study 2a was identical to Study 1, with four notable exceptions. First, Study 2a only included adults.¹⁰ Second, the stimuli in Study 2a were stick

¹⁰ Studies 2a-2b included only adult participants. We focused on collecting data from adults for these studies for two main reasons. First, as mentioned in Footnote 1, children and adults showed a similar pattern of response in Study 1. Second, we collected data for Studies 2a and 2b in 2021, during the coronavirus pandemic. Due to the difficulty of recruiting a large sample of child participants during this time, collecting data from adults helped expedite the research process.

figures standing in a prison cell as opposed to photographs taken from the face database used in Study 1 (Kennedy et al., 2009); the stick figures did not depict racial information (see Supplementary Materials for example of stimuli). We used these images because we did not find an effect of race in Study 1. Third, Study 2a employed a 3-level (Information Type: internal vs. behavioral vs. societal) between-participants design. That is, unlike in Study 1 where participants learned about three different incarcerated individuals, participants in Study 2a learned about one incarcerated individual. Fourth, participants completed the procedure online and read all experimental items to themselves. They selected the scale label that best matched their response when using the Likert-scale to respond to the main experimental items.

Results

After determining that the two dependent measures (“How much do you like this person?”; “How much do you want this person to live in your neighborhood after he leaves prison?”) within each information type condition correlated with each other ($.68 \leq r \leq .89$, $p < .001$), we collapsed them into one measure of attitude. We analyzed participants’ attitudes using a 3 (Information Type: internal vs. behavioral vs. societal) between-participants ANOVA (Fig. 3.2). This analysis revealed a main effect of Information Type, $F(2, 344) = 70.06$, $p < .001$, $\eta_p^2 = .29$. To better understand the effect of Information Type, we compared how adults viewed individuals after hearing each type of information. This analysis included three comparisons; therefore, p values needed to be .017 or lower to pass the Bonferroni-corrected significance threshold. In line with the pattern of responses in Study 1, adults reported more positive attitudes toward those who were incarcerated because they did not have very much money while growing up than toward those who were incarcerated for doing something wrong and, separately, for being bad people ($p < .001$, Cohen’s $d_s \geq 1.00$). Also in line with the pattern of responses in Study

1, adults expressed more favorable attitudes toward people who were incarcerated because they had done something wrong than because they were bad people ($p=.007$, Cohen's $d=.46$).

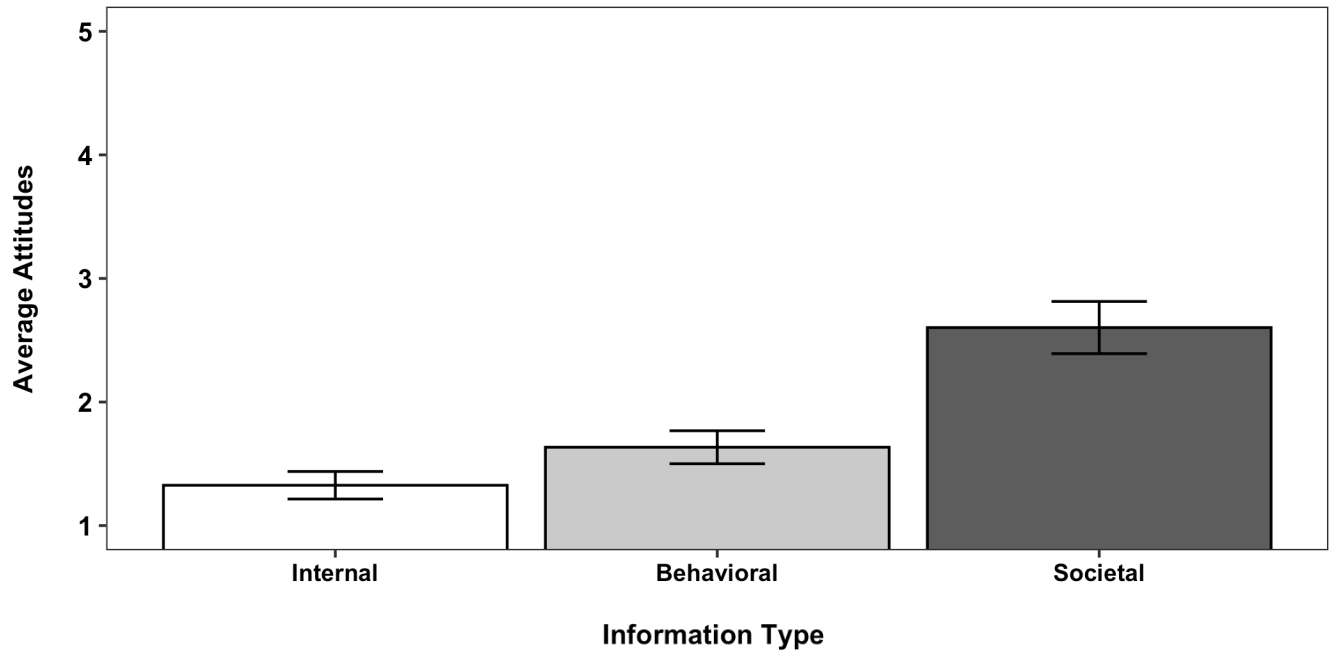


Fig. 3.2. Average attitudes toward people whose incarceration was attributed to different causes, Study 2a. Higher values reflect more positive attitudes. Error bars represent 95% confidence intervals.

Discussion

Study 2a examined whether the pattern of results obtained in Study 1 would replicate in a new sample when employing a between-participants manipulation of information type. We found a similar pattern of results across Studies 1 and 2a. Namely, as in Study 1, participants in Study 2a reported the most positivity toward individuals who were incarcerated for a societal reason and the least positivity toward individuals who were incarcerated for their internal moral character; attitudes toward those who were incarcerated for behavioral factors fell between these two extremes. Given that this pattern of results emerged both in Studies 1 (using a within-participants manipulation) and 2a (using a between-participants manipulation), it is unlikely that

study design wholly explained why Study 1 revealed differences across different types of information.

Study 2b

Study 2b built on Study 2a by examining an additional alternative explanation for why differences emerged across conditions in Study 1. Namely, Study 2b investigated the extent to which participants drew different inferences about wrongdoing across the various conditions used in Study 1. It is possible that participants in Study 1 who learned that a person was incarcerated because he did something wrong might have assumed that people whose incarceration was attributed to other causes (e.g., societal factors) did *not* do something wrong. This reasoning could have led participants to report different attitudes toward each individual. We addressed this possibility in Study 2b by asking adults whether different individuals—namely, those incarcerated for internal, behavioral, and societal reasons—were incarcerated also because they had done something wrong (i.e., committed a crime). If participants consistently draw different inferences about criminal behavior across conditions, it is possible that such inferences underlie the pattern of results found in Study 1. However, if participants do not consistently draw different inferences about criminal behavior across conditions, such a finding would likely rule out the possibility that such inferences wholly underlie the pattern of results found in Study 1.

Method

Participants. An a priori power analysis performed in G*Power (Faul et al., 2007) suggested that a sample of 92 participants per within-participants condition would have 80% power ($\alpha=.05$) to detect the smallest effect size associated with a significant comparison in Study 1 (Cohen's $d=.38$). In line with this recommendation, our final sample included 117 adults

between 19 and 73 years old ($M_{age}=38.97$ years, $SD_{age}=10.91$ years; 40% female, 58% male, 2% other; 82% White or European-American, 4% Black or African-American, 11% Asian or Asian-American, 1% Native American or Pacific Islander, 2% multiracial; 6% Hispanic or Latinx, 94% not Hispanic or Latinx). We over-recruited participants because we expected that some data would be unusable (e.g., due to failing an attention check question).

We recruited participants online via Amazon's Mechanical Turk, which we configured so that only United States residents whose approval rating was at least 95%, who had previously completed at least 1,000 other studies on the online platform, and who had not completed any other studies from our lab related to this project could participate. Participants received \$0.40 if they correctly answered an attention check item presented at the end of the session asking them to recall any of the items they had answered in the study. We excluded data from two additional participants because they incorrectly answered this attention check item. The pattern of results for all analyses remained unchanged when we opted not to exclude any participants.

Procedure. As in Study 1, participants viewed pictures of three different incarcerated individuals, one at a time. As in Study 2a, the stimuli portrayed stick figures standing in a prison cell. Participants read that each of the three individuals was incarcerated for a different reason (because he was a bad person, because he did something wrong, or because he did not have very much money when he was growing up). After learning about each individual, participants answered the following yes-or-no item: "Do you think this person is incarcerated also because he committed a crime?" Participants answered this item for a given individual before doing so for a different individual. They learned about each incarcerated individual in a counterbalanced order and read all items to themselves while completing the procedure online.

Results

We investigated participants' inferences about law-breaking using two types of analyses (Fig. 3.3). First, we used a series of binomial tests to compare the proportion of participants indicating that the people they learned about broke the law with .50 (chance, indicating uncertainty about whether such individuals broke the law). This approach yielded three comparisons; thus, p values needed to be .017 or lower to pass the Bonferroni-corrected significance threshold. Participants were more likely than chance to agree that people whose incarceration was attributed to internal ($N=116$, $p<.001$, Cohen's $g=.40$), behavioral ($N=117$, $p<.001$, Cohen's $g=.45$), and societal ($N=117$, $p<.001$, Cohen's $g=.33$) reasons also broke the law.

Next, we used a series of McNemar's tests to compare the extent to which participants' inferences about law-breaking in each condition differed from their inferences about law-breaking in each other condition. This approach yielded three comparisons; thus, p values needed to be .017 or lower to pass the Bonferroni-corrected significance threshold. Participants reported more agreement that people who were incarcerated for behavioral, versus societal, reasons broke the law ($p=.001$, OR=8.00). No other tests reached significance ($ps\geq.070$, ORs ≤ 3.00).

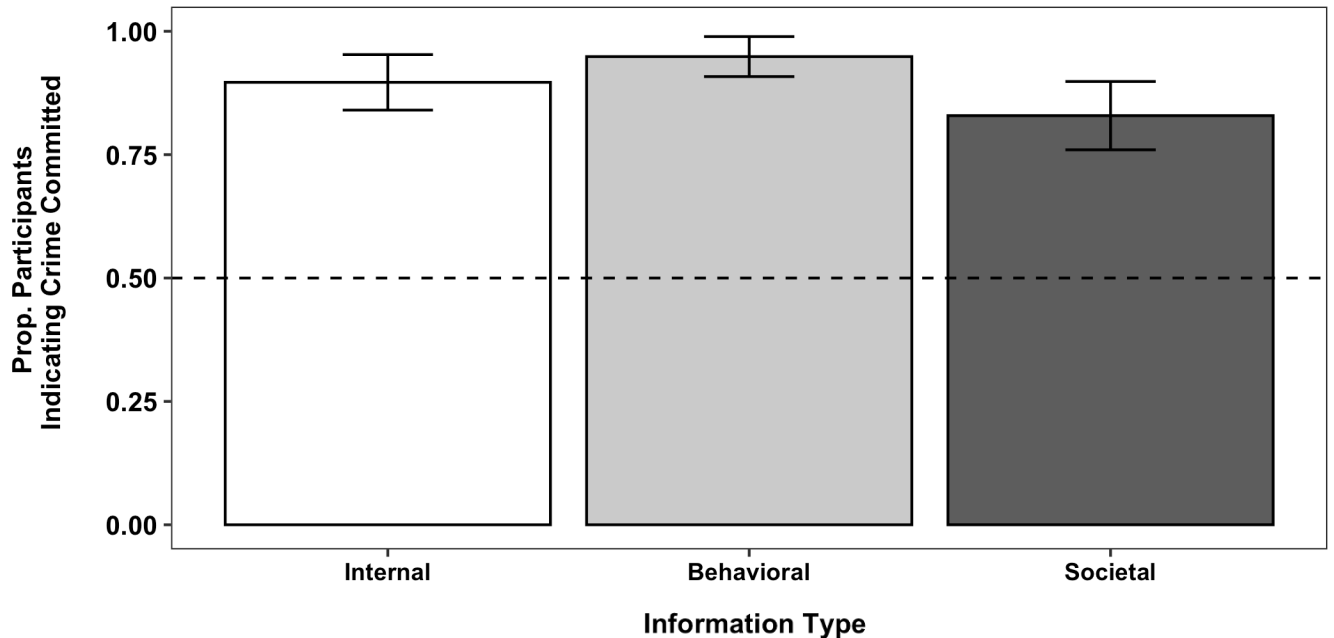


Fig. 3.3. Proportion of participants indicating that a given individual was incarcerated because he committed a crime, Study 2b. Error bars represent 95% confidence intervals.

Discussion

Study 2b investigated adults' inferences about people whose incarceration was attributed to internal, behavioral, and societal reasons. The proportion of participants indicating that people were incarcerated for wrongdoing was significantly above chance in each condition. This finding dovetails with prior literature suggesting that adults readily infer that people receive legal punishment for behavioral reasons (Dunlea & Heiphetz, 2020). Although participants largely reported that individuals in each condition engaged in wrongdoing, one main difference emerged across conditions: participants reported more agreement that people who were incarcerated for behavioral, versus societal, reasons broke the law. One interpretation of this finding is that participants made divergent inferences about wrongdoing across some conditions. By extension, the divergent inferences about wrongdoing across the behavioral and societal information conditions may partially explain the difference in attitudes toward those incarcerated for

behavioral, versus societal, reasons in Study 1. However, no other significant differences emerged across conditions in Study 2b; thus, it is possible that divergent inferences about wrongdoing may not fully explain *all* differences in Study 1. In particular, it is not clear why divergent inferences about wrongdoing would emerge in response to behavioral versus societal information, but not in responses to any other information pairs.

Study 3

The main contribution of Study 3 was to examine whether the effects from Study 1 would generalize to different pieces of information of the same type. For example, we tested whether providing children with information about the link between poverty and incarceration uniquely leads to relatively favorable evaluations of incarcerated individuals or whether other societal information, such as linking incarceration with racism or unfair treatment by police, would have a similar effect. In addition to telling participants about people who were incarcerated because of their internal moral character, their behavior, and societal reasons, participants learned about people whose incarceration was attributed to factors irrelevant to incarceration (e.g., having a younger brother). The irrelevant reasons served as a control condition in this study. A secondary contribution of Study 3 was to examine whether the main pattern of results from Study 1 replicated in a new sample of children.

Method

Participants. The recruitment procedure for Study 3 was identical to that of Study 1. Our final sample included 72 6- to 8-year-olds ($M_{\text{age}}=6.86$ years, $SD_{\text{age}}=.81$ years; 43% female, 54% male, remainder unspecified; 29% White or European-American, 29% Black or African-American, 6% Asian or Asian-American, 1% Native-American or Pacific Islander, 21% multiracial, 7% other, remainder unspecified; 22% Hispanic or Latinx, 71% not Hispanic or

Latinx, remainder unspecified). Data from four additional participants were excluded because the child did not understand the instructions ($n=2$), wanted to end the study ($n=1$), or experienced parental interference during testing ($n=1$). All children received a small prize (e.g., a sticker) for participating.

Procedure. Children completed the session in a quiet room located either in a developmental psychology laboratory or in a children’s museum. The procedure for Study 3 was identical to Study 1, with two notable exceptions. First, the stimuli in Study 3 portrayed stick figures standing in a prison cell (see Supplementary Materials for example of stimuli) as opposed to photographs taken from a face database (Study 1); the stick figures did not depict racial information. We used these images because we did not find an effect of race in Study 1. As in Study 1, the experimenter displayed each image one at a time on a laptop computer screen.

Second, children learned about 12 different individuals, each of whom was incarcerated for a different reason (three for internal reasons, three for behavioral reasons, three for societal reasons, and three for irrelevant reasons; see Table 3.2). As mentioned above, the irrelevant information served as a control condition. We adapted the irrelevant information from prior work testing children’s agreement with irrelevant explanations for incarceration (Dunlea & Heiphetz, 2020).¹¹

¹¹ In addition to answering the questions described in the main text, participants also reported the extent to which they believed that each individual deserved to be incarcerated. We asked children a yes-or-no item (“Do you think this person deserves to be in prison?”) followed by a second, more fine-grained item (“How sure are you? Are you very sure, kind of sure, or not very sure?”). We assigned responses numerical values from 1 (very sure that the character *does not* deserve to be in prison) to 6 (very sure that the character *does* deserve to be in prison). The purpose of asking these additional items was to test a potential mechanism that might explain why different attributions for incarceration shape divergent perceptions of punished individuals. Perceptions of how much individuals deserved punishment generally mediated the relation between different attributions and attitudes toward incarcerated individuals. All descriptive statistics for items measuring perceptions of deservingness are presented in the Supplementary Materials, as are the direct, indirect, and total effects for all mediation models. These results may provide initial insight into *why* different types of information regarding why someone might receive punishment might lead to varied attitudes toward incarcerated people. However, we did not test a potential mechanism in Study 4 because we were concerned that doing so would increase the length of the study to be beyond the length of children’s attention span. Thus, for congruency, we focus on children’s attitudes in the main text.

Table 3.2

Information provided in Study 3.

Information Type	Specific Information
Internal moral character	“He is in prison because he is a bad person”
Internal biological	“He is in prison because something in his brain makes him different from people who are not in prison”
	“He is in prison because of the way he was born”
Behavioral	“He is in prison because he broke the rules”
	“He is in prison because he made a mistake”
	“He is in prison because he did something wrong”
Societal	“He is in prison because he didn’t have very much money when he was growing up”
	“He is in prison because of the color of his skin”
	“He is in prison because the police arrest a lot of other people in his neighborhood”
Irrelevant	“He is in prison because he has a younger brother”
	“He is in prison because he uses his left hand to draw”
	“He is in prison because he ate a peanut butter and jelly sandwich for lunch yesterday”

Results

Replication of Study 1. First, we tested whether the effects found in Study 1 would replicate in a new sample. To do so, we analyzed participants’ responses to the items common to Study 1 and Study 3 using a 3-level (Information Type: internal vs. behavioral vs. societal) repeated measures ANOVA. This analysis revealed a main effect of Information Type, $F(2, 138)=72.02, p<.001, \eta_p^2=.51$. To better understand this effect, we compared how children viewed

individuals after hearing each type of information. This analysis included three comparisons; therefore, p values needed to be .017 or lower to pass the Bonferroni-corrected significance threshold. Replicating the pattern of results found in Study 1, children reported more positivity toward people who were incarcerated because they did not have very much money while growing up than toward people whose incarceration was attributed to an internal reason or a behavioral reason ($ps < .001$, Cohen's $ds \geq .96$). Also replicating Study 1, children expressed more positivity toward people who were incarcerated because they had done something wrong than toward people who were incarcerated because they were bad people ($p < .001$, Cohen's $d = .44$).

Generalizability of Attitudes in Study 1. Next, we examined the extent to which the pattern of results found in Study 1 generalized to different pieces of information of the same type. After determining that each set of items within each information type had acceptable reliability ($\alpha_{\text{internal}} = .71$; $\alpha_{\text{behavioral}} = .67$; $\alpha_{\text{societal}} = .86$; $\alpha_{\text{irrelevant}} = .77$), we collapsed across items measuring the same type of information and analyzed these measures using a 4-level (Information Type: internal vs. behavioral vs. societal vs. irrelevant) repeated measures ANOVA (Fig. 4).

This analysis revealed a main effect of Information Type, $F(3, 207) = 92.44$, $p < .001$, $\eta_p^2 = .57$. To better understand this effect, we compared how children viewed individuals after hearing each type of information. This analysis included six comparisons; therefore, p values needed to be .008 or lower to pass the Bonferroni-corrected significance threshold. Replicating the pattern of results found in Study 1, children reported more positivity toward people who were incarcerated for societal reasons than for internal or behavioral reasons ($ps < .001$, Cohen's $ds \geq .91$). However, unlike the pattern of results found in Study 1, children expressed more favorable attitudes toward people whose incarceration was attributed to internal rather than

behavioral reasons ($p < .001$, Cohen's $d = .63$). Finally, attitudes toward those who were incarcerated for societal and irrelevant reasons did not differ from one another ($p = .009$, Cohen's $d = .32$).

While Studies 1 and 3 suggest that attributing incarceration to societal factors yields more positive attitudes toward incarcerated people than does attributing incarceration to internal or behavioral factors, it was initially unclear why children in Study 3 reported more positivity after learning information about behavioral versus internal factors underlying incarceration. One possibility is that the additional items attributing incarceration to internal factors highlighted internal *biological* factors as opposed to internal moral character. While viewing members of stigmatized social groups as sharing underlying, inherent features often predicts negative social ramifications (e.g., Allport, 1954; Heiphetz, 2019; Hussak & Cimpian, 2018), attributing stigmatized qualities to internal biological factors may sometimes foster more positive perceptions (Carvalho et al., in press; Dar-Nimrod et al., 2011; Monterosso et al., 2005; Robbins & Litton, 2018).

To test whether items attributing incarceration to internal biological factors yielded different attitudes than attributing incarceration to internal moral character, we collapsed items referencing each information sub-type into two different variables. We then compared participants' responses to these items using paired-samples t test. Indeed, children expressed more favorable attitudes toward individuals whose incarceration was attributed to internal biological factors than to internal moral character, $t(69) = 11.39$, $p < .001$, Cohen's $d = 1.36$.

Because this analysis revealed a significant difference between these information sub-types, we conducted a follow-up analysis that separated items measuring perceptions of people who were incarcerated for internal factors into two variables, one measuring attitudes toward

individuals whose incarceration was attributed to internal moral character and another measuring attitudes toward individuals whose incarceration was attributed to internal biological factors. We then re-analyzed participants' responses using a 5-level (Information Type: internal moral character vs. internal biological vs. behavioral vs. societal vs. irrelevant) repeated measures ANOVA (Fig. 3.4). This analysis revealed a main effect of Information Type, $F(2.86, 197.09)=116.39, p<.001, \eta_p^2=.63$. To better understand this main effect, we compared how children viewed individuals after hearing each type of information. This analysis included 10 comparisons; therefore, p values needed to be .005 or lower to pass the Bonferroni-corrected significance threshold. Children expressed more negative attitudes toward people whose incarceration was attributed to their internal moral character than those who were incarcerated for internal biological, behavioral, societal, and irrelevant reasons ($ps<.001$, Cohen's $ds\geq.83$). Moreover, children expressed more negative attitudes toward people who were incarcerated for behavioral reasons rather than internal biological, societal, and irrelevant reasons ($ps<.001$, Cohen's $ds\geq 1.08$). Finally, children exhibited more negative attitudes toward individuals whose incarceration was attributed to internal biological factors than to irrelevant reasons ($p<.001$, Cohen's $d=.46$). No other pairwise comparisons reached significance ($ps\geq.009$, Cohen's $ds\leq.32$).

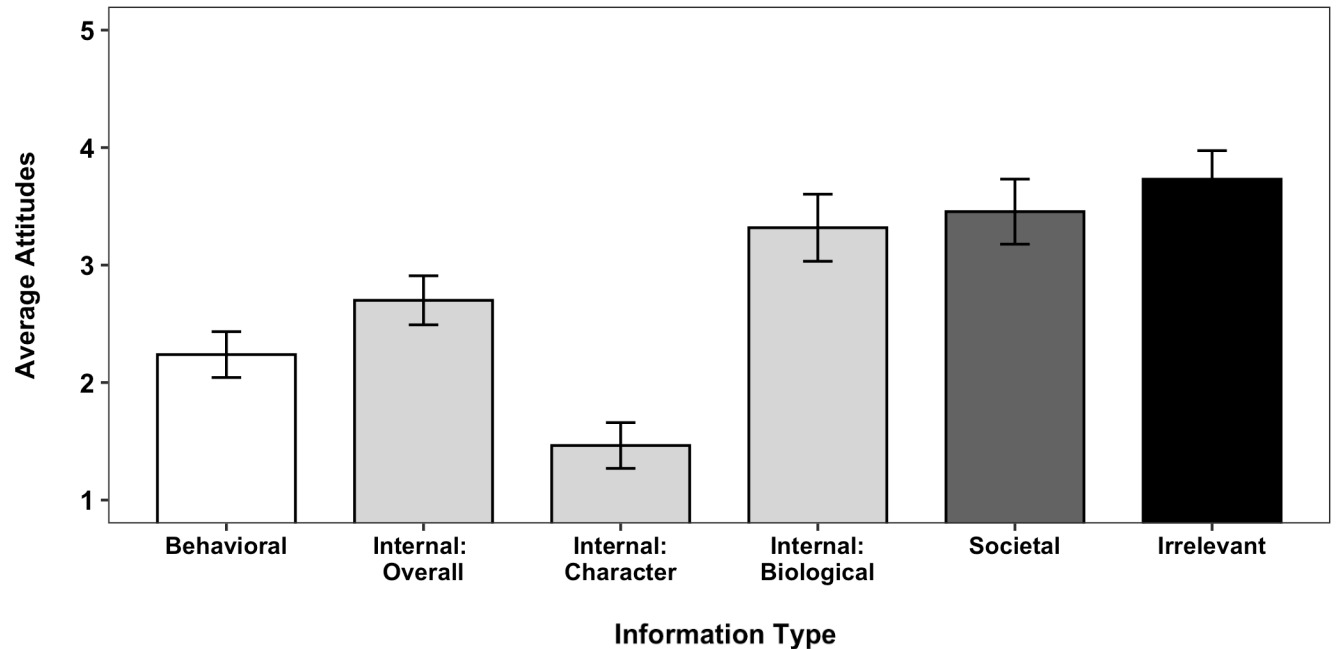


Fig. 3.4. Average attitudes toward people whose incarceration was attributed to different causes, Study 3. Higher values reflect more positive attitudes. Error bars represent 95% confidence intervals.

Discussion

Study 3 replicated and extended the pattern of results from Study 1. As in Study 1, participants in Study 3 expressed more positivity toward individuals who were incarcerated because they did not have very much money while growing up than toward individuals who were incarcerated because they had done something wrong, and participants also expressed more positivity toward individuals who were incarcerated because they had done something wrong than toward individuals who were incarcerated for their internal moral character.

Additionally, Study 3 extended the results of Study 1 by examining whether the results from these studies generalized to different pieces of information of the same type. Together, Studies 1 and 3 provided converging evidence that information about societal causes for incarceration yields more positive attitudes toward incarcerated people than does information

about individual-level (behavioral, internal) causes. However, one difference emerged between Studies 1 and 3: only participants in Study 3 reported more positivity toward individuals after learning information about behavioral, versus internal, reasons for incarceration. Follow-up analyses suggested that this pattern of results emerged because the experimental items in Study 3 highlighted two distinct types of internal factors: internal moral character and internal biological factors. While some past work has found that information about internal biological factors may help alleviate negativity toward those who possess stigmatized characteristics (e.g., Robbins & Litton, 2018), the present work is among the first to demonstrate this effect in children (for an exception with children, see Carvalho et al., in press). Thus, the present work suggests that children readily differentiate between different types of information regarding internal factors and adds nuance to prior work examining the downstream consequences of internal information.¹²

Study 4

Studies 1 and 3 suggest that providing children with societal information about incarceration, versus information referencing internal moral character or behaviors, leads them to report more positivity toward incarcerated people. However, because Studies 1 and 3 only examined children's attitudes toward incarcerated people, the extent to which this pattern would generalize to other contexts is unclear. Thus, the primary contribution of Study 4 was to examine the extent to which the pattern of results from Studies 1 and 3 would generalize to contexts beyond incarceration. We did so by providing children with different types of information about

¹² An additional study (Study S1), presented in the Supplementary Materials, built on the results of Study 3 by investigating the extent to which the deleterious effects of attributions highlighting internal moral character could be ameliorated by simultaneously highlighting other types of information that are associated with more positive attitudes (e.g., information linking incarceration with societal factors). Overall, simultaneously highlighting other types of information significantly attenuated the negativity associated with attributions emphasizing internal moral character; see Supplementary Materials for additional details regarding this study.

why people received specific (incarceration) and non-specific (getting in trouble) forms of punishment. We also provided children with descriptions of individuals who did not receive any punishment. Comparing the “incarceration” and “in trouble” conditions allowed us to clarify the extent to which the pattern of results found in Studies 1 and 3 generalizes across punitive contexts. Moreover, comparing the “incarceration” and “in trouble” conditions with the “no punishment” condition clarified whether the pattern of results found in Studies 1 and 3 was unique to information being conveyed via one specific type of linguistic form (i.e., explanations, the focus of Studies 1 and 3) or whether such a pattern would also emerge when information was conveyed via another linguistic form (i.e., descriptions). Finally, Study 4 examined the extent to which the main pattern of results from Study 3 replicated in a new sample of participants.

Method

Participants. The recruitment procedure for Study 4 was identical to that of Studies 1 and 3, except that we also recruited children to participate in the study via Zoom, an online videoconferencing platform. We initially planned to follow the same recruitment procedure outlined in Studies 1 and 3. However, we needed to alter our recruitment procedure given the coronavirus outbreak in Spring 2020. We recruited Zoom participants by advertising in parenting groups on social media. These groups were specific to families living in the northeastern United States, the same geographic region where we recruited in-person participants.

An a priori power analysis performed in G*Power (Faul et al., 2007) suggested a sample of 40 participants would have 80% power ($\alpha=.05$) to detect the smallest effect size associated with a significant comparison in Study 3 (Cohen’s $d=.46$). In line with this recommendation, our final sample included 40 6- to 8-year-olds ($M_{\text{age}}=6.93$ years, $SD_{\text{age}}=.86$ years; 60% female, 40% male; 70% White or European-American, 3% Black or African-American, 8% Asian or Asian-

American, 13% multiracial, 3% other, remainder unspecified; 15% Hispanic or Latinx, 75% not Hispanic or Latinx, remainder unspecified). Eighty-five percent of participants completed this study in-person (either at a museum or in a developmental psychology lab); the remainder participated via Zoom. We did not exclude data from any participants in this study. The main pattern of results reported below emerged even when responses from those participating via Zoom were excluded from analyses, suggesting that testing method did not reliably influence how children responded to experimental items. All children who participated in person received a small prize (e.g., a sticker), and all children who participated online received a \$5 gift card.

Procedure. Children who participated in person completed the session in a quiet room located either in a developmental psychology laboratory or in a children’s museum. Children who participated online completed the session in a quiet room in their homes. The procedure for Study 4 was identical to Study 3, with three main exceptions. First, the stimuli in Study 4 showed stick figures against a white backdrop (see Supplementary Materials for example of stimuli) as opposed to stick figures standing in a prison cell. Unlike Study 3, where participants learned only about incarcerated individuals, participants in Study 4 learned about individuals in several contexts. Because not all characters were incarcerated, we portrayed all individuals as simply standing against a white backdrop. Second, we did not test a potential mechanism in Study 4, as we did in Study 3, because we were concerned that doing so would increase the length of the study beyond the length of children’s attention spans.

Third, children completed the current study in three blocks. In Block I, children learned about different individuals, each of whom was described in a different way. Mirroring the information types used in Study 3, we described each individual by highlighting internal moral characteristics, behaviors, internal biological factors, societal inequalities, or irrelevant

characteristics. For instance, during one trial, an experimenter said, “Look, here is a person. He didn’t have very much money when he was growing up.” Participants learned about two individuals per description category, for a total of 10 individuals. After learning about each individual, participants answered the same attitudinal questions used in Studies 1 and 3 (e.g., “How much do you like this person?”). Departing from the procedure of Studies 1 and 3, we did not describe any individuals in this block as being punished in any way. The purpose of including a “no punishment” condition was to examine whether the results of Studies 1 and 3 were primarily driven by information embedded within explanations for punishment or whether information embedded within descriptions alone, in the absence of punishment, would be sufficient to observe the same pattern of results. If the former possibility is the case, children may respond differently in the two punishment conditions (the “incarceration” and “in trouble” conditions) than they do in the “no punishment” condition. If the latter possibility is the case, children may respond similarly in all three conditions. Thus, Block I served as a control condition in this study.

We adapted the items used in Block I, as well as the items used in all subsequent blocks, from the pool of items used in Study 3. We chose these items based on how representative they were of each information type in Study 3. To determine representativeness, we calculated a mean attitude score for each category based on the three items per category tested in Study 3. We then selected the two items whose average attitude scores were closest to the overall mean for inclusion in the present study. The only exception to this procedure was that Study 4 included trials where participants learned about an individual who was described as a “mean person.” Study 3 only included one trial where the participants learned about an individual’s internal

moral character (i.e., “He is in prison because he is a *bad person*”); thus, introducing this new description allowed us to use two descriptions per category.

During Block II, participants learned about 10 different individuals, each of whom was described as being “in trouble” for a different reason (two related to internal moral character, two behavioral, two societal, two internal biological, and two irrelevant). For instance, during one trial, an experimenter said, “Look, here is a person. He is *in trouble* because he didn’t have very much money when he was growing up.” The purpose of including an “in trouble” condition was to examine whether the results of Studies 1 and 3 were driven by the specific form of punishment tested in those studies (incarceration) or whether punishment in general would elicit similar results. If the former possibility is the case, children may respond differently in the “incarceration” condition (describing a specific punishment) than they do in the “in trouble” condition (describing punishment in general). However, if the latter possibility is the case, children may respond similarly in the “incarceration” and “in trouble” conditions. Thus, the purpose of Block II was to test the extent to which the pattern of results from Study 3 would generalize to a context where punishment is non-specific.

In Block III, participants learned about 10 different individuals, each of whom was described as being incarcerated for a different reason (two related to internal moral character, two behavioral, two societal, two internal biological, and two irrelevant). The procedure for Block III was identical to Study 3’s procedure.

We held block order constant across participants, who responded to all experimental items in one block before moving on to the next. As described above, participants first learned about individuals who had not received punishment, then individuals who got in trouble, and then individuals who were incarcerated. We made this decision because we did not want

participants to infer that the individuals described in the first block were being punished for any reason, and we did not want participants to infer that the individuals described in the second block were in a specific type of trouble (being incarcerated). See Table 3.3 for a complete list of items used across Blocks I-III.

Table 3.3

Information provided in Study 4.

Punishment Type	Information Type	Specific Information
No Punishment	Internal moral character	“He is a bad person” “He is a mean person”
	Internal biological	“He has something in his brain that makes him different from some other people” “He was born in a way that makes him who he is”
	Behavioral	“He broke the rules” “He did something wrong”
	Societal	“He didn’t have very much money when he was growing up” “He has this color skin”
	Irrelevant	“He has a younger brother” “He had a peanut butter and jelly sandwich for lunch yesterday”
In Trouble	Internal moral character	“He is in trouble because he is a bad person” “He is in trouble because he is a mean person”
	Internal biological	“He is in trouble because something in his brain makes him different from people who are not in trouble” “He is in trouble because of the way he was born”
	Behavioral	“He is in trouble because he broke the rules” “He is in trouble because he did something wrong”
	Societal	“He is in trouble because he didn’t have very much money when he was growing up” “He is in trouble because of the color of his skin”
	Irrelevant	“He is in trouble because he has a younger brother” “He is in trouble because he had a peanut butter and jelly sandwich for lunch yesterday”
Incarceration	Internal moral character	

	<p>“He is in prison because he is a bad person”</p> <p>“He is in prison because he is a mean person”</p>
Internal biological	<p>“He is in prison because something in his brain makes him different from people who are not in prison”</p> <p>“He is in prison because of the way he was born”</p>
Behavioral	<p>“He is in prison because he broke the rules”</p> <p>“He is in prison because he did something wrong”</p>
Societal	<p>“He is in prison because he didn’t have very much money when he was growing up”</p> <p>“He is in prison because of the color of his skin”</p>
Irrelevant	<p>“He is in prison because he has a younger brother”</p> <p>“He is in prison because he had a peanut butter and jelly sandwich for lunch yesterday”</p>

Results

Replication of Study 3. First, we tested whether the results from Study 3 would replicate in a new sample of children. After determining that each set of items within each information type had acceptable reliability in each condition (no punishment: $\alpha_{\text{moral character}}=.70$; $\alpha_{\text{behavioral}}=.75$; $\alpha_{\text{biological}}=.66$; $\alpha_{\text{societal}}=.74$; $\alpha_{\text{irrelevant}}=.76$; in trouble: $\alpha_{\text{moral character}}=.86$; $\alpha_{\text{behavioral}}=.90$; $\alpha_{\text{biological}}=.81$; $\alpha_{\text{societal}}=.77$; $\alpha_{\text{irrelevant}}=.78$; incarceration: $\alpha_{\text{moral character}}=.75$; $\alpha_{\text{behavioral}}=.83$; $\alpha_{\text{biological}}=.86$; $\alpha_{\text{societal}}=.81$; $\alpha_{\text{irrelevant}}=.71$), we collapsed across items measuring the same type of information in the incarceration condition and analyzed these measures using a 5-level (Information Type: internal moral character vs. behavioral vs. internal biological vs. societal vs. irrelevant) repeated measures ANOVA. This analysis revealed a main effect of Information Type, $F(2.44, 94.98)=59.07, p<.001, \eta_p^2=.60$. To better understand this effect, we compared how children viewed individuals after hearing each type of information, for a total of 10 comparisons. After applying a Bonferroni correction, p values needed to be .005 or lower to remain significant.

All but one significant comparison from Study 3 also emerged in Study 4. As in Study 3, children expressed more negativity toward those whose incarceration was attributed to their internal moral character than toward those who were incarcerated for internal biological, behavioral, societal, and irrelevant reasons ($ps\leq.002$, Cohen's $ds\geq.54$). Also as in Study 3, children expressed more negative attitudes toward those who were incarcerated for behavioral reasons than those whose incarceration was attributed to internal biological factors, societal inequalities, and irrelevant reasons ($ps<.001$, Cohen's $ds\geq 1.06$). No other comparisons reached significance ($ps\geq.018$, Cohen's $ds\leq.39$).

Generalizability of Attitudes Across Contexts. Next, we examined the extent to which the pattern of results found in Study 3 generalized to contexts outside of incarceration. To do so,

we analyzed participants' attitudes using a 3 (Punishment Type: no punishment vs. in trouble vs. incarceration) x 5 (Information Type: internal moral character vs. behavioral vs. internal biological vs. societal vs. irrelevant) repeated measures ANOVA (Fig. 3.5). This analysis revealed a main effect of Information Type, $F(2.83, 110.16)=134.86, p<.001, \eta_p^2=.78$, and a Punishment Type x Information Type interaction, $F(5.87, 228.73)=3.22, p=.005, \eta_p^2=.08$. The effect of Punishment Type did not reach significance ($p=.257$).

To better understand the Punishment Type x Information Type interaction, we conducted two sets of tests. First, we compared each type of information with each other type of information separately in the "no punishment," "in trouble," and "incarceration" conditions. This approach resulted in a total of 30 comparisons. Therefore, after applying a Bonferroni correction, p values needed to be .002 or lower to remain significant. In each of the three conditions, children reported more negativity toward individuals after hearing information about their internal moral character than after hearing information about their behaviors, societal inequalities, internal biological factors, or irrelevant factors ($ps \leq .002$; Cohen's $ds \geq .54$). Moreover, in each of the three conditions, children reported more negative attitudes after hearing information about individuals' behaviors than after hearing information about societal inequalities, internal biological factors, or irrelevant factors ($ps < .001$; Cohen's $ds \geq 1.06$). No other comparisons reached significance ($ps \geq .018$; Cohen's $ds \leq .39$).

Second, we compared children's attitudes after hearing each type of information within a given condition with their attitudes after hearing that same type of information in each of the other conditions. For example, we compared children's attitudes toward individuals who were simply described as doing something bad ("no punishment" condition) to their attitudes toward individuals who were described as being in trouble because they did something bad ("in trouble"

condition) and, separately, to their attitudes toward individuals who were described as being in prison because they did something bad (“incarceration” condition). This resulted in a total of 15 comparisons. Therefore, *p* values needed to be .003 or lower to pass the Bonferroni-corrected significance threshold, and none did so ($ps \geq .005$; Cohen’s $ds \leq .47$).

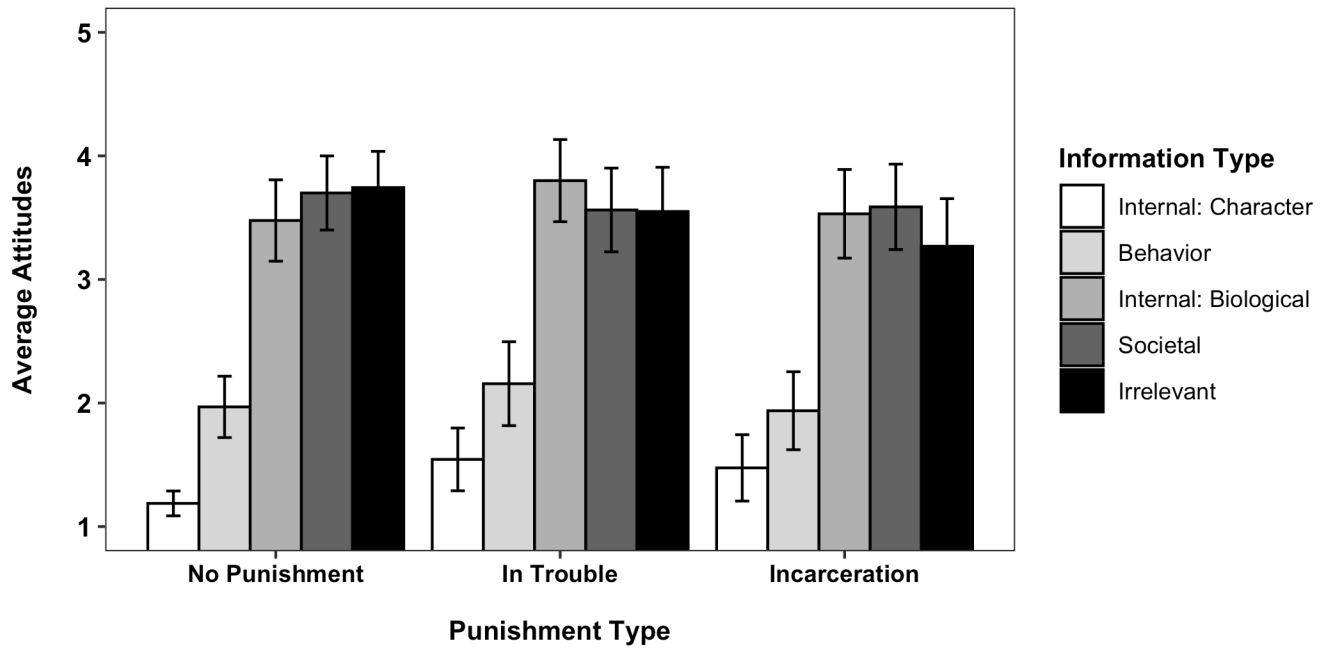


Fig. 3.5. Average attitudes toward individuals who were described in different ways, Study 4. Higher values reflect more positive attitudes. Error bars represent 95% confidence intervals.

Discussion

Study 4 replicated and extended the results from Study 3. As in Study 3, children expressed more negative attitudes toward people whose incarceration was attributed to their internal moral character than toward those who were incarcerated for internal biological, behavioral, societal, and irrelevant reasons. Children also reported more negative attitudes toward those who were incarcerated for behavioral reasons than toward those whose incarceration was attributed to internal biological factors, societal inequalities, and irrelevant

reasons. Additionally, Study 4 extended the results of Study 3 by examining whether the pattern of results from Study 3 generalized to contexts other than incarceration. A similar pattern of results emerged within each of the three conditions (no punishment, getting in trouble, incarceration). Children responded similarly after learning different explanations for why people received punishment (getting in trouble condition, incarceration condition) and after learning about different descriptions of individuals (no punishment condition). For example, children's attitudes toward those who were *incarcerated* for a behavioral reason (e.g., doing something wrong) did not differ from their attitudes toward people who were simply described as doing something wrong. Because children did not respond differently after learning different *explanations* for why people received punishments and after learning about different *descriptions*, these results suggest that the descriptive context embedded within explanations may serve as the primary mechanism by which explanations shape children's attitudes in certain domains (see Directions for Future Research in the General Discussion for elaboration on this point).

General Discussion

The current work examined how different types of information about why a specific outcome (incarceration) occurs shape children's attitudes toward individuals experiencing such an outcome. Several main findings emerged. In Study 1, children reported the most positivity after learning that an individual was incarcerated for a societal reason and the least positivity after learning that an individual was incarcerated for their internal moral character; learning that an individual was incarcerated for a behavioral reason led children to report attitudes that fell between these extremes. Studies 2a-2b suggested that the results from Study 1 could not be wholly explained by divergent inferences about incarcerated individuals. Study 3 replicated and

extended Study 1's results by showing that referencing internal moral character led to more negativity than referencing internal biological factors. In Study 4, the pattern of results in Studies 1 and 3 generalized to a context highlighting a non-specific type of punishment (getting in trouble) and, separately, a context devoid of punishment. Study 4 also showed that the pattern of results in Studies 1 and 3 emerged regardless of whether information was conveyed via explanation or description.

Theoretical and Practical Implications of The Current Research

The current work extends prior research in several ways. First, the current findings clarify how several different types of information shape social cognition. Prior research has typically compared only two types of information (e.g., information focusing on internal versus societal causes, Heiphetz, 2019; Levy & Dweck, 1999; Potter & Roberts, 1984). Less work has compared multiple types of information within the same experimental paradigm. Thus, the relation among various types of information was initially unclear. We addressed this theoretical gap by probing the social ramifications of several different types of information within the same paradigm. Across Studies 1, 3, and 4, children consistently reported more positive attitudes toward incarcerated individuals after hearing societal, rather than internal or behavioral, attributions for incarceration. Children also distinguished between internal and behavioral attributions, reporting more positive attitudes in the latter case. These findings add nuance to prior work highlighting the negative ramifications of information emphasizing individual-level causes (e.g., Cozzarelli et al., 2001; Kluegel & Smith, 1986) by highlighting differences between different types of individual-level attributions.

Second, the current work highlights the durability of positivity associated with information about societal causes of stigmatized characteristics. As mentioned above, linking

stigmatized characteristics with societal, versus individual-level, factors typically predict more positivity toward people with such characteristics (e.g., Cozzarelli et al., 2001). Because this effect has emerged in several domains, it was possible that a similar pattern would emerge within the criminal legal context. Alternatively, it was possible that elementary schoolers in the current work would report similar levels of negativity toward those who were incarcerated for societal, versus individual-level, causes. Children report a great deal of negativity when thinking about people who have come in contact with the criminal legal system (Dunlea & Heiphetz, 2020). Because children more readily attend to negative over positive information (e.g., Kinzler & Shutts, 2008), it was possible that children's negativity toward incarcerated individuals would overpower the positivity typically associated with societal information. The results of the current work support the former possibility, suggesting that the positivity linked with societal information may be so strong that it overpowers elementary schoolers' negativity toward people who have had contact with the criminal legal system. While the current work underscores the strength of societal information, it is important to note that such information confers *relative*—as opposed to *absolute*—positivity toward members of stigmatized social groups. Namely, the attitudes linked with societal information hovered near or slightly above the midpoint of the scale across Studies 1, 2a, 3, and 4 (indicating only somewhat positive attitudes), whereas the attitudes linked with individual-level (internal moral character, behavioral) factors were closer to the scale floor. Nonetheless, the fact that children reported even somewhat positive views toward those whose incarceration was attributed to societal factors is noteworthy given that children's a priori attitudes toward those implicated in the legal system are quite negative.

Third, the present findings elucidate the degree to which the information presented within an explanation, versus the context in which that information is communicated, influences

children's attitudes. Study 4 most directly addressed this topic by examining the extent to which the pattern of results from Studies 1 and 3 generalized to a context highlighting a non-specific type of punishment (getting in trouble) and, separately, a context completely devoid of punishment. The pattern of results in the "in trouble" and "no punishment" conditions mirrored the pattern of results in the "incarceration" condition. Moreover, differences in attitudes toward individuals described in similar ways across contexts (e.g., individuals who were simply described as doing something bad and, separately, individuals who were described as being in trouble because they did something bad) did not emerge.

It is particularly surprising not to find differences across the "no punishment," "in trouble," and "incarceration" conditions in Study 4. Children readily make negative inferences about people after learning that they have previously received punishment (e.g., Bregant et al., 2016; Dunlea & Heiphetz, 2020). Because children often attend to negative information over positive or neutral information (e.g., Baltazar et al., 2012), it was possible that the negativity associated with punitive contexts would decrease any positivity associated with information couched within a given explanation. In other words, the likely differences in children's baseline views across conditions could have led participants to view a person described in a certain way in the "no punishment" condition more positively than a person whose punishment was explained in a similar way. For instance, children's views of a person described as doing something wrong ("no punishment" condition) could have been more positive than their views of a person who was incarcerated for doing something wrong because the negativity associated with incarceration *plus* the negativity associated with transgression would be greater than the negativity associated with just transgression. Despite the likely differences in children's baseline views across conditions, children's attitudes surprisingly generalized across different contexts.

This pattern of results suggests that the information presented within an explanation plays a greater role in shaping children's attitudes toward others than the context in which that information is communicated. Moreover, this pattern of results may indirectly illuminate the mechanics by which explanations shape children's attitudes in certain domains (see Directions for Future Research section below).

Study 1 provides additional indirect evidence for the idea that the information presented within an explanation plays a greater role in shaping children's attitudes toward others than the context in which such information is expressed. Here, we did not find differences in children's reported attitudes toward Black versus White incarcerated people. As discussed in the Introduction, the United States criminal legal system disproportionately punishes individuals who are marginalized on the basis of racial group membership (e.g., Alexander, 2012). Moreover, much work in psychological science suggests that children readily attend to race (for a review, see Quinn et al., 2019), with some work suggesting that both White and non-White children show pro-White preferences (Dunham et al., 2008). Based on this prior scholarship, it was reasonable to expect that children in the current work would report different attitudes toward Black versus White individuals. The fact that such differences did not emerge may suggest that the information embedded within explanations is so powerful that it plays a greater role in shaping children's attitudes than does the racial group membership of the individual being discussed. However, it is difficult to draw strong conclusions from null results. Thus, it is possible that children hold different attitudes toward Black and White individuals and that our methodology failed to capture these differences.

Fourth, the current work demonstrates that children readily differentiate between information sub-types. In Studies 3 and 4, information about people's internal biological

characteristics was associated with greater positivity than information about people's internal moral character. This work adds important nuance to prior scholarship documenting the consequences of viewing human characteristics as stemming from internal causes, largely because most research testing children suggests that linking human characteristics with internal factors exacerbates—as opposed to mitigates—bias (for reviews, see Heiphetz, 2020; Rhodes & Mandalaywala, 2017). Thus, the current work extends past scholarship by highlighting the need to study sub-types of internal information (i.e., highlighting information about biological and non-biological causes), partially because information about internal factors shapes social cognition differently across information sub-types.

Finally, in conjunction with prior work testing adults, the current studies reveal how certain types of information about why a socially relevant outcome occurs might shape social cognition over development. Past work examining the consequences of information about internal biological causes for human characteristics has largely focused on adults (e.g., Boysen, 2011; Dar-Nimrod & Heine, 2011; Martin & Heiphetz, in press; Monterosso et al., 2005; Liu et al., 2019; for an exception with children, see Carvalho et al., in press). Moreover, much of this work has yielded mixed results regarding the consequences of such information. Some work suggests that information about internal biological causes for stigmatized characteristics helps reduce negativity toward individuals possessing such characteristics because it reduces judgments of blameworthiness (e.g., Dar-Nimrod et al., 2011; Monterosso et al., 2005). Other work, however, indicates that highlighting information about internal biological factors has negative repercussions, in part because doing so can inflate perceived between-group differences (e.g., Rhodes & Mandalaywala, 2017) and portray members with certain stigmatized characteristics as dangerous (e.g., Boysen, 2011).

The current work extends this previous research by testing the effects of information linking stigmatized characteristics with internal biological causes. In Studies 3 and 4, referencing internal biological factors alleviated children's negativity toward individuals with a given stigmatized characteristic (incarceration status) to a greater extent than did referencing internal moral character or behaviors. In conjunction with past work highlighting the benefits of biological attributions, one interpretation of these findings is that the benefits of providing information about internal biological factors may not depend on extensive amounts of social learning. A second, perhaps more nuanced, interpretation is that the effect of providing information about internal biological factors may become more context-dependent over development. The adult social psychology literature may have yielded mixed results because researchers have tested the consequences of providing information about internal biological factors across slightly different contexts and situations (see Boysen, 2011; Martin & Heiphetz, in press for further discussion of this point). In the current work, we did not find that information about internal biological factors shaped children's social cognition differently across different contexts, suggesting that references to internal biological information plays a greater role in shaping children's judgments than the context in which such information is communicated. Thus, it is possible that, over development, people become more sensitive to the context in which information about internal biological factors is presented. This increased sensitivity to context may help explain the heterogeneity in adults' judgments concerning internal biological causes.

Directions for Future Research

The current work examined the consequences of different types of information. In doing so, the present studies made several important theoretical contributions. However, as in all programs of research, additional questions remain open for future investigation.

One potentially fruitful avenue for future research could clarify the mechanism underlying differences in children's attitudes across studies. One possibility is that explanations presented in Studies 1 and 3 changed children's attitudes via their own causal reasoning. Indeed, past work suggests that verbal framing and statistical patterns can shift children's reasoning about the causes of a given outcome (Peretz-Lange & Muentener, 2019; Vasilyeva et al., 2018) and that children readily update their beliefs about an entity's causal structure after learning relevant information (Lucas et al., 2014). Thus, explanations for legal system contact in Studies 1 and 3 may have changed children's beliefs about the causes of such contact; in turn, the degree to which children changed their causal beliefs about legal system contact may have predicted differences in attitudes.

While future work can directly test this possibility, the findings reported in Study 4 offer initial evidence against this possibility. As previously discussed, we did not find that children in Study 4 responded differently after learning information that was conveyed via *explanations* and after learning information that was conveyed via *descriptions*. For example, we did not find that children reported different attitudes after hearing explanations linking incarceration with internal moral character (e.g., "He is in prison because he is a bad person") and after hearing information describing individuals in a similar way (e.g., "He is a bad person"). One interpretation of these findings is that the mechanism underlying the observed pattern of results in Studies 1 and 3 does not involve children's own explanatory reasoning. That is, these findings provide initial evidence that children's attitudes changed as a result of learning a new piece of information about an individual as opposed to updating their causal beliefs about a given characteristic (e.g., incarceration status). This possibility is broadly consistent with prior literature suggesting that

children update their global impressions of others after learning new information about them (e.g., Dunlea & Heiphetz, in press; Lapan et al., 2016; Ronfard & Lane, 2018).

Another direction for future research concerns the stability of children's attitudes over time. We investigated how different information influenced children's attitudes at a single point in time. Thus, it is unclear what effect, if any, the information would have at a later time point. On the one hand, learning something new about an individual may have an enduring impact on social cognition. On the other hand, subjective experiences, such as attitudes toward others, change over time (e.g., Johnson et al., 1993). Thus, learning a new piece of information about an individual may shape social cognition for a short amount of time. If this is the case, future programs of research can explore how to sustain the palliative effects of societal attributions for certain stigmatized outcomes (e.g., incarceration). Some prior work has found that "booster interventions"—additional treatments following an initial intervention—help maintain or even enhance initial intervention effects (e.g., Lochman, 1992; Tolan et al., 2009). Extending this reasoning to the present study, researchers can provide children with information about how societal factors give rise to stigmatized characteristics at several time points to sustain the benefits of such information.

Finally, future studies can include a greater variety of dependent measures. Namely, participants in Study 2b indicated their inferences about wrongdoing using a binary measure. We designed Study 2b to answer a categorical question: do participants who learn different information about the reasons for incarceration draw different inferences about whether an individual committed a crime? Future work could investigate more nuanced questions using a continuous measure, such as how likely participants think it is that a given individual committed a crime or how much certainty participants have about their judgments. Moreover, an open-

ended measure may reveal qualitative differences regarding the types of crimes committed by individuals incarcerated for different reasons (e.g., participants may report that individuals incarcerated for internal reasons committed more serious crimes than individuals incarcerated for societal reasons). Future work can examine these possibilities.

Conclusion

The current work examined how several different types of information (e.g., internal, behavioral, societal) shape attitudes across diverse contexts. Participants reported the most positivity after learning about people who were incarcerated for societal reasons and the least positivity after learning about people who were incarcerated for their internal moral character, with information highlighting behaviors leading to attitudes between these extremes. Importantly, these results could not be fully explained by participants drawing different inferences about each of the characters. Further, references to internal moral character led to more negativity than references to internal biological factors. Notably, children's attitudes did not differ regardless of whether a given piece of information represented a description of a person, an explanation for non-specific punishment, or an explanation for incarceration. Thus, descriptive content embedded *within* explanations may be the mechanism by which explanations shape children's attitudes. Taken together, these results demonstrate that—for better or for worse—the way in which we express our beliefs about social phenomena help shape the social realities in which others must live.

Context of the Research

These studies are part of the authors' larger program of research investigating children's and adults' views of people whom they perceive to have transgressed, including individuals who have had contact with the legal system. This project most directly builds from the authors' prior

work investigating children's and adults' own inferences about why other people might come in contact with the criminal legal system (Dunlea & Heiphetz, 2020). Given that such inferences can create distinct social realities, the authors examined how different information about why someone might receive one type of punishment—namely, incarceration—might shape children's attitudes toward punished individuals.

Introduction to Chapter 4

Chapter 2 focused on how people interpret punishment's past-oriented messages (i.e., messages about who a person was prior to being punished), and Chapter 3 documented how such messages shape people's responses to punished individuals in the present. Together, Chapters 2 and 3 clarify an understudied topic within psychology (incarceration) and leverage experimental methods to answer questions that typically fall under the purview of scholars working outside the psychological tradition. Nevertheless, Chapter 2 focused on messages about who a punished individual was in the *past* and Chapter 3 focused on the ramifications of such messages in the *present*. Chapter 4 built on Chapters 2 and 3 by examining people's inferences about what punishment might signal about an individual at a different point in time—namely, the *future*.

Addressing this topic was important for two main reasons. First, doing so allowed us to advance theorizing about communicative theories of punishment. As previously mentioned, Chapter 2 suggested that punishment communicates information about who a punished individual was in the past and Chapter 3 found that such messages have implications for how laypeople's responses to punished individuals' identities in the present. When thinking about identity, people often reason about multiple selves (i.e., past, present, and future selves, for a review, see Peetz & Wilson, 2008). Moreover, people sometimes indicate that who an individual was in the past may not reflect who that individual will be in the future (e.g., McAdams, 2013). Because people sometimes differentiate between past versus future selves, people may interpret punishment's messages as communicating distinct types of information about past and, separately, future identity. If people also rely on punishment's messages to make inferences about who a punished individual will be in the future, such a finding would advance

communicative theories of punishment by providing evidence that people understand punishment to communicate distinct information about different types of selves.

Second, addressing this topic is pragmatic. Recent estimates suggest that, in the United States, more than 95% of incarcerated people are eventually released from prison or jail (James, 2015; also see Travis, 2005). Despite having served their debt to society, formerly incarcerated individuals experience discrimination long after being released from prison or jail (e.g., Forbes, 2016; Pachankis et al., 2017; Van Cleve, 2016). While this past scholarship has highlighted the far-reaching consequences of legal punishment in the United States, relatively less work has examined the psychological precursors of *why* formerly incarcerated people may experience negativity long after experiencing incarceration. One possibility is that such negativity may, in part, arise from the perception that punishment within the United States carceral system does not work toward improving people (e.g., Kleinfeld, 2016; Van Cleve, 2016). Chapter 4 addresses this possibility by examining laypeople's perceptions of one group of people who have been implicated in the United States criminal legal system (i.e., incarcerated people).

Chapter 4:

Children's and adults' views of punishment as a path to redemption

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Abstract

The current work investigated the extent to which children ($N=171$ 6- to 8-year-olds) and adults ($N=94$) view punishment as redemptive. In Study 1, children—but not adults—reported that “mean” individuals became “nicer” after one severe form of punishment (incarceration). Moreover, adults expected “nice” individuals’ moral character to worsen following punishment; however, we did not find that children expected such a change. Study 2 extended these findings by showing that children view “mean” individuals as becoming “nicer” following both severe (incarceration) and relatively minor (time-out) punishments, suggesting that the pattern of results from Study 1 generalizes across punishment types. Together, these studies indicate that children—but not adults—may view punishment as a vehicle for redemption.

Keywords: moral cognition; punishment; social cognitive development

Children's and Adults' Views of Punishment as a Path to Redemption

In the fictional novel *The 7 ½ Deaths of Evelyn Hardcastle* (Turton, 2018), readers become acquainted with Aiden Bishop, a fictional character who describes his time spent at Blackheath Manor, a futuristic prison. While at Blackheath Manor, Aiden muses that putting people behind bars “can’t build better men” and “can only break what goodness remains” (p. 436). In other words, Aiden believes that this form of punishment is ineffective in catalyzing moral improvement.

Here, we join other scholars in conceptualizing punishment as a “behavior aimed at those who cause harm or violate social norms” (Deutchman, Bračić, Raihani, & McAuliffe, in press, p. 2). Scholars sometimes describe punishment as “costly,” meaning that punishers *pay* a cost (e.g., putting themselves at risk for retaliation) for a transgressor to *incur* a cost (e.g., loss of resources; Fehr & Gächter, 2002; McAuliffe, Jordan, & Warneken, 2015; Salali, Juda, & Henrich, 2015). Prior work has delineated how punishment differs from other responses to perceived moral transgression, such as logical consequences. Whereas punishment need not directly address the transgression-induced outcome (e.g., Mageau et al., 2018; Nelsen, 1985; Robichaud & Mageau, 2019), logical consequences require transgressors to respond to the harm they have caused (Ginott, 1965). For example, parents who employ a punitive approach to transgression may decide to take away their child’s television privileges because she purposefully broke a different object. This approach qualifies as punishment because the parent took away a privilege (watching television) that was unrelated to the child’s misdeed (breaking something else). In contrast, parents who uphold a logical consequences approach to transgression may require their child to repair an object that she purposefully broke.

While punishment is just one possible response to perceived moral transgression, it served as the focus of the current studies because it is a common reaction to wrongdoing. Specifically, Study 1 focused on children's and adults' views about the impact of one particularly severe form of punishment (incarceration) on moral character. Of course, incarceration is just one type of punishment, and laypeople's reasoning about incarceration may differ from their reasoning about other forms of punishment. For example, adults may be especially pessimistic about the impact of incarceration on moral character because they have negative stereotypes about what it is like to spend time in prison or jail. Nevertheless, the current work initially probed views about the impact of incarceration on moral character because such punishment is a common response to perceived transgression within the United States criminal legal system (e.g., Alexander, 2012, Forman, 2017; Travis, Western, & Redburn, 2014; Van Cleve, 2016). Study 2 compared incarceration with a less severe form of punishment (time-out) to probe the extent to which results generalized across different forms of punishment. Together, these studies afforded us the opportunity make theoretical contributions spanning developmental psychology, moral cognition, and experimental jurisprudence. We outline these contributions in the sections below.

How Might Age-Related Changes in Socio-Moral Cognition Shape Views About the Impact of Punishment on Moral Character?

Adults living in the United States may understand punishment as communicating negative information about punished individuals' moral character (Dunlea & Heiphetz, in press; Kleinfeld, 2016; Van Cleve, 2016; Yankah, 2004). Though people sometimes describe incarceration as paying a debt for a moral wrong, predominant cultural narratives in the United States sometimes portray those directly implicated in the criminal legal system as morally

bankrupt and forever unable to repay their debt. Such individuals are often depicted “as remaining criminal for life” and as having “inelastic” immoral character (Yankah, 2004, p. 1027; see also Dunlea & Heiphetz, in press; Kleinfeld, 2016; Van Cleve, 2016). As such, adults may view punishment as ineffective in catalyzing moral improvement. However, the developmental trajectory of this view remains unclear.

The current work recruited elementary school-aged children and adults in order to test between two competing possibilities regarding how views about the impact of punishment on moral character may change with age. On the one hand, elementary schoolers may be *less* likely than adults to view punishment as effectively improving moral character. This possibility is rooted in past work on *psychological essentialism*—the tendency to view others’ characteristics as stemming from internal, immutable, biologically-based “essences” (Gelman, 2003; Medin & Ortony, 1989). Although both children and adults endorse the idea that essences exist (for review, see Rhodes & Mandalaywala, 2017), elementary schoolers typically report more essentialist perspectives than do adults (e.g., Chalik, Leslie, & Rhodes, 2017; Heiphetz, Gelman, & Young, 2017; Hussak & Cimpian, 2019; Taylor, Rhodes, & Gelman, 2009). Crucially, recent work has documented age-related decreases in essentialist reasoning within the moral domain (Heiphetz, 2020). Such studies have shown that children are more likely than adults to attribute punishment to an internal “bad” essence (Dunlea & Heiphetz, 2020) and to perceive moral badness as arising from an internal, unchanging source (Heiphetz, 2019). Given that children are especially prone to viewing human characteristics—including moral character—as innate and unchangeable, children in elementary school may be less likely than adults to report that punishment is effective in catalyzing moral growth.

On the other hand, elementary schoolers may be *more* likely than adults to view punishment as an effective mechanism to improve moral character. This possibility is consistent with work showing that children in elementary school are typically more optimistic than adults (Boseovski, 2010; Boseovski & Lee, 2006; Heyman & Giles, 2004; Lockhart, Nakashima, Inagaki, & Keil, 2008). In one study probing views of trait change outside the domain of punishment, children were more likely than adults to report that people's negative qualities change for the better over time (i.e., to perceive that mean people will become nicer over time, Lockhart et al., 2008). Though past experiments have not focused on whether children view punishment as catalyzing positive growth, sociological data provide initial support favoring this possibility. In one diary study probing children's justifications for punishment (Twum-Danso Imoh, 2013), several children spoke of punishment as a vehicle for moral improvement. For example, one child reported that, without punishment, an unruly child will likely "grow up to become a bad person" (p. 479). One interpretation of these types of responses is that punishment can transform an individual with immoral character into someone who is virtuous. Speaking more directly to this interpretation, another respondent noted that "punishment is one of the ways through which a child can be corrected, so it is good" (p. 479).

In addition to testing between these competing developmental possibilities, the current work builds on theoretical models of punishment. Previous research suggests a unidirectional link between perceived immoral character and punitive outcomes: whereas perceived immorality typically augments the likelihood of punitive outcomes (e.g., receiving blame), perceived goodness attenuates such outcomes (Nadler, 2012; Nadler & McDonnell, 2011). For instance, in one line of work, participants learned about two people—one described as "good" and the other as "bad"—who both committed the same transgression (starting a deadly fire, Nadler &

McDonnell, 2011). Although each individual committed the same transgression, participants reported that the “bad” person was more responsible, more blameworthy, and less likable than the “good” person. In other words, perceived immoral character increased punitive outcomes even when behavior was held constant. This finding suggests a directional link between perceived immorality and punishment-related outcomes. If children and adults perceive punishment as changing moral character, this would suggest that the link between perceived immorality and punishment is *bidirectional*. In sum, the present work adds to past theoretical models of punishment by investigating the extent to which punishment impacts perceived moral character.

Why Study Punishment in the Context of the Criminal Legal System?

The current work used the criminal legal system as an example domain in which to investigate children’s and adults’ views about punishment. Some scholars working in the legal tradition conceptualize punishment as “expressive,” i.e., as both an action and a mechanism for social messaging (e.g., Duff, 2011; Feinberg, 1965; Kahan, 1996; Markel, 2011; Murphy & Hampton, 1988). For instance, scholars have argued that punishment expresses information about community norms (Duff, 2011; Markel, 2011) or social hierarchies (i.e., the social standing of victims relative to transgressors, Murphy & Hampton, 1988). Importantly, scholars writing on the expressive function of punishment typically conceptualize punishment as severe. For instance, punishment has been equated with “hard treatment” (Feinberg, 1965, p. 397) and depicted as requiring “pain or other consequences normally considered unpleasant” (Hart, 1959, p. 4). Given that severe punishment is typically confined to formal systems such as incarceration, scholarship discussing the expressive function of punishment is often couched within the criminal legal system context.

Although this past work has argued that punishment carries communicative weight, few programs of research within psychology have empirically tested how laypeople interpret punishment's messages. The studies that have employed experimental methods to answer related questions, however, have largely focused on testing adults (Bilz, 2016; Ho, Cushman, Littman, & Austerweil, 2019; Okimoto & Wenzel, 2011; for an exception with children, see Bregant, Shaw, & Kinzler, 2016). The current work leveraged experimental methods to investigate how both children and adults reason about the impact of one particularly severe form of punishment (incarceration) on moral character. Specifically, we tested 6- to 8-year old children and adults in the same experimental paradigm. Testing elementary schoolers was important for two main reasons. First, testing children in this age range allowed us to extend, and compare our results with, previous work examining elementary schoolers' essentialism (e.g., Heiphetz, 2019; Hussak & Cimpian, 2019; Taylor et al., 2009) and, separately, their optimism (e.g., Boseovski, 2010). As mentioned in the section above, these separate bodies of scholarship suggest that both essentialist reasoning and optimism are high during the elementary school years. Thus, testing children in this age range allowed us to examine the extent to which children's optimism overwhelms their tendency to believe human characteristics such as "badness" are immutable. Second, past work suggests that 6- to 8-year-olds can reason and respond to questions about individuals who have been implicated in the criminal legal system (Bregant et al., 2016; Dunlea & Heiphetz, 2020; Dunlea, Wolle, & Heiphetz, in press). As such, we were able to ask children questions about individuals who received a relatively severe form of punishment (incarceration) that is specific to criminal legal system context and compare their inferences about such individuals with their inferences about people who received a relatively less severe form of punishment (time-out).

In addition to the theoretical contributions laid out above, studying punishment in the context of the criminal legal system addresses an important topic that is understudied in psychology. Scholarship at the intersection of psychology and law has documented discrimination and prejudice toward those who have been implicated in the criminal legal system (e.g., Banks, Eberhardt, & Ross, 2006; Haney, 2012; Moore, Stuewig, & Tangney, 2016; Richardson & Goff, 2013). While this literature has underscored the far-reaching implications of legal punishment in the United States, relatively less work has examined the psychological underpinnings of *why* formerly incarcerated individuals may experience such negativity long after experiencing incarceration. This negativity may partially arise from the view that incarceration within the United States context fails to improve people (Dunlea & Heiphetz, in press; Kleinfeld, 2016; Van Cleve, 2016; Yankah, 2004). The current work addressed this possibility by examining how laypeople view those who have experienced incarceration.

Overview of Current Work

The current work examined laypeople's views about the impact of certain types of punishment on perceived moral character. Study 1 examined this question by asking children and adults to indicate the extent to which “nice” and, separately, “mean” individuals' moral qualities changed following one particularly severe type of punishment—incarceration. By testing children and adults in the same paradigm, the present work provided insight into how judgments about the impact of punishment change throughout development. Study 2 built on the results of Study 1 by investigating the extent to which children's views generalize across different forms of punishment.

Study 1

Study 1 investigated the extent to which children and adults view punishment as driving moral change. To do so, we told participants about both a morally good (“nice”) and, separately, a morally bad (“mean”) individual. Participants in the experimental condition learned that these individuals were punished for breaking the law, whereas the participants in the control condition learned that these individuals went on a business trip. Participants indicated how morally good each individual would be both during and after the incarceration or trip. Data for this study were collected between Fall 2017 and Spring 2018.

Method

Participants. Participants included 94 children between six and eight years old ($M_{\text{age}}=6.92$ years, $SD_{\text{age}}=.79$ years; 57% female, 43% male). Children’s parents completed a demographic questionnaire in which they identified their children as White or European-American (45%), Black or African-American (17%), Asian or Asian-American (14%), multiracial (14%), and “other” (6%); the remaining parents did not answer this question. Parents reported their child’s ethnicity using a separate question, and 18% of parents identified their children as Hispanic or Latinx. Data from five additional children were excluded because they did not comprehend the experimental items. Children were recruited from a departmental database and from a children’s museum in a large city in the northeastern United States. Here and in Study 2, families signed up for inclusion in the departmental database either in person (at public street fairs, public parks, and the aforementioned children’s museum) or by visiting our laboratory’s website. Given our recruitment strategy, any families with eligible children could participate. All children received a small prize for participating.

Participants also included 94 adults between 18 and 52 years old ($M_{\text{age}}=22.68$ years, $SD_{\text{age}}=5.74$ years; 66% female, 34% male). Adult participants self-identified as White or

European-American (44%), Black or African-American (19%), Asian or Asian-American (26%), Native American or Pacific Islander (1%), multiracial (7%), or “other” (3%). Additionally, 10% of adults self-identified as Hispanic or Latinx. Data from three additional adults were excluded because they did not correctly answer an attention check item asking them to describe any of the characters presented throughout the study. Adults were recruited through the psychology department’s participant pool and from the greater metropolitan community. Adults who participated via the university participant pool received .5 credits, and adults from the greater community received a small prize, such as a piece of candy.

Thirty-four adults reported that they knew at least one person who has previously served time in a jail or prison. Additionally, seven parents reported that their child knew at least one person who has experienced incarceration. However, no significant differences in responses emerged between individuals who knew at least one incarcerated individual and those who did not (see Supplementary Materials for relevant exploratory analyses concerning this variable). We also conducted a series of exploratory analysis examining the extent to which participant race and ethnicity predicted participant responses. Although members of racial and ethnic minority groups often have very different experiences in the criminal legal system than majority group members (e.g., Alexander, 2012; Banks et al., 2006; Richardson & Goff, 2013; Van Cleve, 2016), neither of these variables reliably predicted participants’ responses (see Supplementary Materials for relevant analyses).

Procedure. Here and in Study 2, an experimenter interviewed children individually in a quiet room located in a children’s museum or in a developmental psychology laboratory. First, the experimenter said that he or she would ask children questions and that there were no right or wrong answers. Further, the experimenter specified that he or she would read sentences about

other people and that children would indicate how much they agreed with each sentence. The experimenter then introduced children to a five-point scale consisting of stick figures arrayed from smallest to largest on a sheet of paper and instructed children on how to use the scale (e.g., asking them to point to the smallest picture if they didn't agree at all with a sentence the experimenter said). The remaining labels were "agree a little bit," "agree a medium amount," "agree a lot," and "agree completely." The experimenter then asked children two test items to gauge their understanding of the scale ("Can you show me where you would point if you didn't agree with the answer at all?"; "Can you show me where you would point if you agree a medium amount?"). On average, children used the scale correctly: 99% correctly answered the item asking where they would point if they "don't agree with the answer at all" and 90% correctly answered the item asking where they would point if they "agree a medium amount." Participants who answered incorrectly received corrective feedback and, subsequently, received a second chance to respond to the item. All participants who did not answer correctly initially provided the correct answer on their second try. See Supplementary Materials for relevant study materials associated with this article, including the scale used to elicit children's responses.

Following these instructions, the experimenter showed children pictures of stick figures on a PowerPoint display. Here and in Study 2, we referred to each individual using male pronouns because most people incarcerated in the United States are male (Bronson & Carson, 2019). The experimenter then pointed to each individual, one at a time, and described him as having either good or bad moral character. For example, the experimenter described the "nice" (morally good) individual as liking to "help others" and the "mean" (morally bad) individual as liking to "start fights with other people." In addition to learning about one "nice" and one "mean" individual, participants learned about a "religious" individual and an "atheistic"

individual. Including the latter two individuals in the present study allowed us to investigate how participants' views of religious qualities compared to their views of moral qualities. This question did not directly concern the main research question; therefore, participants' views of religious qualities will not be discussed further in the Main Text (see Supplementary Materials for relevant experimental items and analyses).

After providing information about an individual's moral character, the experimenter told participants that the individual had broken the law and gone to jail (punishment condition) or that the individual had gone on a business trip (control condition); that is, condition type was a between-participants variable. We chose a business trip as the control condition because, like incarceration (Travis, 2005), work-related absences can be lengthy but are typically temporary. To aid comprehension, children in the punishment condition saw a series of PowerPoint animations depicting the punished individual entering and subsequently being carried away from his home by a police car. After watching the series of animations, children viewed an image of the punished individual standing in a jail cell. Children in the control condition saw a series of PowerPoint animations depicting the control individual entering and subsequently being carried away from his home by an airplane. After watching these animations, children viewed an image of the control individual standing in a business office.

The remainder of Study 1 progressed in two parts. During Part I, the experimenter asked participants in the punishment condition to rate their agreement with four statements regarding each punished individual's moral character (e.g., "How much do you agree that now, Frank is a good person deep, deep down inside?"). Each of the four items highlighted positively valenced characteristics: one item focused on individuals' good "essences," one item focused on individuals' kind behaviors, and two items focused on individuals' prosocial intentions (see

Supplementary Materials for all experimental items). We framed items in terms of individuals' positively, instead of negatively, valenced characteristics because we did not want to introduce or reinforce any negative preconceptions about individuals who have come into contact with the criminal legal system.

The experimenter pointed at the individual standing in the jail cell while asking each item. The experimenter began Part II by saying, "Frank stays in jail for a really, really long time. Eventually, Frank finishes all the time that he needed to spend in jail, and he is allowed to go back home." To ensure that children understood that the punished individuals left jail, the experimenter then showed children corresponding images of each individual standing near his home. After providing this information, the experimenter once again asked participants to rate their agreement with the same four statements regarding each individual's moral character (e.g., "How much do you agree that now, Frank is a good person deep, deep down inside?"). The purpose of asking the same set of experimental items in Parts I and II was to examine the extent to which participants believe that moral character changes as a function of punishment. Critically, measuring perceived moral character at baseline (i.e., at the beginning of individuals' punishment) and following the punishment allowed us to tabulate the extent to which participants perceived punishment as eliciting moral improvement, moral decline, or no change in moral character.

The procedure of the control condition closely mirrored that of the punishment condition. Here, participants rated their agreement with four statements regarding each individual's moral character at the beginning (Part I) and conclusion (Part II) of the business trip. As in the punishment condition, we employed visual aids to ensure children understood that the individuals in the control vignettes had returned from their business trips. Specifically, the

experimenter showed children corresponding images of each control individual standing near his home.

Adults completed this procedure online and selected the scale label that best matched their response (i.e., they viewed only the verbal labels, not the stick figures used to represent the scale to children). Moreover, adults did not view the visual stimuli used to aid children's comprehension of the story; instead, they only read descriptions of each scenario. We made these changes because adults are better able than children to attend to verbal information and do not require pictures to draw their attention to stimuli.

Both children and adults answered all items about each individual before moving on to the next individual. For example, after answering all items about the “mean” individual, participants completed the same procedure for the “nice” individual. The order in which participants learned about each individual was counterbalanced across participants, as was the order of experimental items regarding each individual. Based on recommendations to include approximately 50 participants per cell in psychological research (Lakens & Evers, 2014; Simmons, Nelson, & Simonsohn, 2013), we aimed to recruit approximately 50 participants in each condition (punishment condition: $n_{\text{children}}=48$; $n_{\text{adults}}=49$; control condition: $n_{\text{children}}=46$; $n_{\text{adults}}=45$). The number of participants per cell is comparable to prior work in developmental psychology (Heiphetz, 2019; Heiphetz, Lane, Waytz, & Young, 2018; Rhodes, Leslie, Saunders, Dunham, & Cimpian, 2018; Shaw & Olson, 2015).

Results

Here and in Study 2, we adjusted analyses that included multiple comparisons using a Bonferroni correction. Additionally, we conducted sensitivity power analyses in G*Power (power=80%, alpha=.05; Faul, Erdfelder, Lang, & Buchner, 2007) to ensure that the current

sample sizes provided enough power to detect reliable effects. Unless otherwise noted, all significant pairwise comparisons yielded p values below the Bonferroni-corrected significance threshold and effect sizes that were above the sensitivity analysis-generated threshold. See Supplementary Materials for additional information regarding the adjusted alpha level and sensitivity analysis generated threshold for each set of pairwise comparisons. In addition to the main analyses reported below, we investigated whether participant age predicted responses in our data. This variable did not reliably predict participants' responses. See Supplementary Materials for these analyses and descriptive statistics for each item in each of the studies.

We averaged participants' responses to the four items regarding each individual's moral character at the beginning of his incarceration/trip to create a composite score ("nice" individuals: $\alpha=.81$; "mean" individuals: $\alpha=.89$). We did the same for the four items regarding each individual's moral character after the incarceration/trip ("nice" individuals: $\alpha=.84$; "mean" individuals: $\alpha=.95$). For ease of interpretation, the main dependent variable was the difference between these two composite values, indicating perceived moral change. In addition to conducting analyses using a difference score, we analyzed our data using raw means, and our interpretation of the results is consistent across analytic approaches. See Supplementary Materials for these analyses and the associated descriptive statistics.

Evaluations of "nice" individuals. We investigated participants' responses using two types of analyses (Figure 4.1). First, we examined the extent to which participants reported that "nice" individuals changed after punishment and after going on a business trip. We used a series of one-sample t -tests to compare perceived change scores to 0 (indicating, on average, no perceived moral change) in each condition among children and, separately, adults. Children did not report that "nice" individuals changed as a function of punishment ($t(47)=1.72, p=.092$,

Cohen's $d=.25$, 95% CI_{diff} : [-.03, .37]) or of going on a business trip ($t(45)=-1.84$, $p=.072$, Cohen's $d=-.27$, 95% CI_{diff} : [-.30, .01]). Like children, adults did not report that "nice" individuals changed as a result of going on a business trip ($t(44)=.71$, $p=.479$, Cohen's $d=.11$, 95% CI_{diff} : [-.06, .13]). However, unlike children, adults reported that "nice" individuals became less "nice" after punishment ($t(47)=-3.21$, $p=.002$, Cohen's $d=-.46$, 95% CI_{diff} : [-.43, -.10]).

Next, we conducted a 2 (Participant Age: child vs. adult) x 2 (Condition: punishment vs. control) between-participants ANOVA in order to investigate whether children and adults reported different magnitudes of change in each condition. This analysis revealed a Participant Age x Condition interaction ($F(1, 183)=14.70$, $p<.001$, $\eta_p^2=.07$). Neither of the main effects reached significance ($ps \geq .101$). To examine the Participant Age x Condition interaction, we conducted two sets of tests. First, we compared the magnitude of change children expected in the punishment condition with the magnitude of change children expected in the business trip condition, and we conducted an analogous comparison among adults. Both children and adults distinguished between the punishment and the business trip conditions. However, they did so in different ways. Children reported that "nice" individuals became "nicer" after receiving punishment than after going on a business trip ($p=.006$, Cohen's $d=.51$, 95% CI_{diff} : [.09, .54]). However, this effect size was smaller than the smallest effect size that could be detected given the present samples; thus, caution is warranted in interpreting this result. In contrast, adults reported that "nice" individuals became less "nice" after receiving punishment than after going on a business trip ($p=.009$, Cohen's $d=.64$, 95% CI_{diff} : [-.52, -.08]).

Second, we investigated whether children and adults reported different magnitudes of change in the punishment versus business trip condition. Children reported stronger increases in moral goodness after punishment than did adults ($p<.001$, Cohen's $d=.69$, 95% CI_{diff} : [.22, .66]).

A significant difference in perceived change did not emerge between children and adults in the business trip condition ($p=.129$, Cohen's $d=.41$, 95% CI_{diff} : [-.40, .05]).

Evaluations of “mean” individuals. Once again, we investigated participants' responses using two types of analyses (Figure 4.1). First, we examined the extent to which participants perceived “mean” individuals to change after receiving punishment and, separately, after going on a business trip. As above, we used a series of one-sample t -tests to compare perceived change scores to 0 in both conditions among children and, separately, adults. Children reported that “mean” individuals became “nicer” after receiving punishment ($t(46)=7.21$, $p<.001$, Cohen's $d=1.05$, 95% CI_{diff} : [.78, 1.39]) and after going on a business trip ($t(45)=2.91$, $p=.006$, Cohen's $d=.43$, 95% CI_{diff} : [.11, .63]). However, these effects did not emerge among adults (punishment: $t(47)=.51$, $p=.612$, Cohen's $d=.07$, 95% CI_{diff} : [-.11, .18]); business trip: $t(42)=1.02$, $p=.315$, Cohen's $d=.16$, 95% CI_{diff} : [-.06, .19]).

Next, we conducted a 2 (Participant Age: child vs. adult) x 2 (Condition: punishment vs. control) between-participants ANOVA in order to investigate whether children and adults reported different magnitudes of change in each condition. This analysis revealed main effects of Participant Age ($F(1, 180)=37.43$, $p<.001$, $\eta_p^2=.17$) and Condition ($F(1, 180)=9.66$, $p=.002$, $\eta_p^2=.05$). These main effects were qualified by a Participant Age x Condition interaction ($F(1, 180)=11.27$, $p=.001$, $\eta_p^2=.06$). To further examine this interaction, we conducted two sets of tests. First, we compared the magnitude of change children expected in the punishment condition with the magnitude of change children expected in the business trip condition, and we conducted an analogous analysis among adults. Children expected stronger increases in moral goodness after punishment than after a business trip ($p<.001$, Cohen's $d=.75$, 95% CI_{diff} : [.41, 1.02]). This pattern did not emerge among adults ($p=.862$, Cohen's $d=.06$, 95% CI_{diff} : [-.34, .28]). Second, we

investigated whether children and adults reported different magnitudes of change in each condition. Children reported stronger increases in moral goodness after punishment than did adults ($p < .001$, Cohen's $d = 1.30$, 95% CI_{diff} : [.75, 1.35]). No significant difference in perceived change emerged between children and adults in the business trip condition ($p = .056$, Cohen's $d = .45$, 95% CI_{diff} : [-.01, .62]).

Discussion

The purpose of Study 1 was to examine children's and adults' judgments about how "nice" and, separately, "mean" individuals' moral attributes might change as a result of being punished (i.e., going to jail). Three main results emerged. First, children, unlike adults, reported that "mean" individuals became "nicer" after punishment. Second, children reported that punishment catalyzed a greater increase in "mean" individuals' moral goodness than did going on a business trip. Third, whereas adults expected "nice" individuals to become less "nice" following punishment, we did not observe this effect among children. These findings extend past work suggesting that children are more optimistic about others than are adults (e.g., Boseovski, 2010) by demonstrating that children are even optimistic about those whom many people perceive to have committed severe moral transgressions (e.g., people who broke the law). Crucially, this work moves beyond past research demonstrating that children believe negative characteristics change for the better over time (e.g., Lockhart et al., 2008) by showing that children reported more moral growth in "mean" individuals after punishment than after going on a business trip. In other words, the present work suggests that children may view severe punishment (incarceration) as a potent driver of moral improvement.

Study 2

Study 2 built on Study 1 in several ways. The primary contribution of Study 2 was to investigate whether the main pattern of results from Study 1 would generalize to different types of punishment. Based on the results from Study 1, it is unclear whether children view only extremely severe punishments (e.g., incarceration) as a vehicle for positive moral change, or whether this effect generalizes to less severe punishments. On the one hand, children sometimes engage in proportional reasoning. For example, they report that people who are more causally responsible for a crime deserve more punishment than those who are less causally responsible (Finkel, Liss, & Moran, 1997). Consequently, children may assume proportionality when judging the link between punishment severity and perceived moral change; namely, they may judge that relatively severe punishments elicit moral improvement more effectively than do relatively mild punishments. On the other hand, children's judgments sometimes strongly depend on the presence of particular factors, even if those factors are only present in small amounts. For instance, children in elementary school sometimes categorize Black-White multiracial individuals as Black despite the presence of both Black and White ancestors (e.g., Roberts & Gelman, 2017). Similarly, elementary school aged children may judge redemption on the basis of only small amounts of punishment, reasoning that relatively mild punishment can still result in moral improvement. To test between these possibilities, Study 2 compared perceived moral improvement after a relatively minor punishment (time-out) versus a relatively severe punishment (incarceration).

Probing views of moral character following severe versus relatively minor punishment also has implications for theories of jurisprudence. Some punishment theorists assume that punishment must be severe in order to be communicative (Feinberg, 1965; Hart, 1959; Murphy & Hampton, 1988). However, whether or not this is actually the case is an empirical question. By

examining what severe and relatively minor punishments signal about a person's moral character, the present work empirically tested an assumption made by some punishment theorists.

In addition to testing generalizability, Study 2 also made several secondary contributions. First, Study 2 allowed us to determine the extent to which the pattern of results from Study 1 would replicate in a new sample of children. Second, Study 2 changed the point at which we collected the "baseline" measure of individuals' moral character. In Study 1, we asked participants about individuals' moral character at the beginning of their incarceration and, separately, when they returned home. In Study 2, we asked participants about individuals' moral character *before* receiving punishment and, separately, when they returned home. Changing the "baseline" about which we asked allowed us to more precisely capture the degree of perceived change following each type of punishment. Third, Study 2 included a more nuanced measure to capture participants' responses. Data for Study 2 were collected between Summer and Fall 2018.

Method

Participants. Recruitment procedures were identical to Study 1, with two main exceptions. First, we only recruited children in Study 2. We made this decision because only children reported that "mean" people changed in accordance with punishment in Study 1, and we wanted to further probe the potential limits of this effect in Study 2. Second, we recruited children for Study 2 from a departmental database and at a partnering developmental psychology laboratory in a large city in the northeastern United States.

Our final sample included 77 children between 6 and 8 years old ($M_{\text{age}}=6.92$ years, $SD_{\text{age}}=.85$ years; 60% female, 40% male). Parents identified their children as White or European-American (25%), Black or African-American (17%), Asian or Asian-American (16%), Native

American or Pacific Islander (4%), Multiracial (23%), and Other (8%); the remaining parents did not indicate their children's racial group membership. Additionally, 23% of parents identified their children as Hispanic or Latinx. Data from three additional participants were excluded because the child did not speak English ($n=1$), the child had a developmental disability ($n=1$), or the parent interfered during testing ($n=1$). Nine parents reported that their child knew at least one person who has experienced incarceration. However, no significant differences in responses to the main dependent variables emerged between participants who knew at least one incarcerated individual and those who did not (see Supplementary Materials for relevant exploratory analyses). Moreover, we also conducted a series of exploratory analysis examining the extent to which participant race and ethnicity predicted participant responses. As in Study 1, neither of these variables reliably predicted participants' responses (see Supplementary Materials for relevant analyses).

Procedure. First, the interviewer said that he or she would ask children questions and that there were no right or wrong answers. The interviewer further specified that he or she would show the child pictures of people on a computer screen, tell the child information about the people, and subsequently ask questions about them. The remainder of the study proceeded in four main parts, which we describe below. The entire procedure is also illustrated in Figure 4.2.

During Part I, the experimenter displayed an image of a pair of individuals on a laptop computer screen and described the pair as being either “nice” or “mean” (e.g., “Here are two people—Frank and Bobby. Frank and Bobby like to start fights with other people. They are *both* very mean”). These descriptions closely matched those used in Study 1. After describing the pair of individuals, the experimenter asked participants four items about each individual's moral character. The content of the moral character items in Study 2 was identical to those used in

Study 1 (as in Study 1, each of the four items highlighted positively valenced characteristics); however, the method of eliciting responses differed across the two studies. Instead of eliciting participants' responses using a five-point scale as in Study 1, participants in Study 2 responded to yes-or-no items (e.g., "Do you agree that Frank is a good person deep, deep down inside? Yes, or no?"). The experimenter followed up each item with a more fine-grained item ("How sure are you? Are you very sure, kind of sure, or not very sure?"). We assigned responses numerical values from -3 (indicating least optimism about individual's moral character, e.g., very sure that the individual was *not* morally good) to +3 (indicating most optimism about individual's moral character, e.g., very sure that the individual *was* morally good). We adapted this two-step approach from prior research in developmental psychology (e.g., Bregant et al., 2016; Hussak & Cimpian, 2018). Implementing this approach allowed us to capture more nuanced responses from participants in a way young children could understand. Participants answered items about one individual in the pair before moving on to items about the other individual in the pair.

After answering items about both individuals, participants proceeded to Part II. Here, they learned that each individual in the pair—regardless of whether the pair was described as "nice" or "mean"—broke the law. The experimenter specified that each individual committed the same transgression (e.g., "One day, Frank and Bobby *both* broke the law. They did the exact same thing"). The purpose of providing this instruction was to ensure that participants did not infer that individuals experienced different punishments because they committed different transgressions. Next, participants learned that each individual received punishment. Unlike in Study 1, where individuals were punished by going to jail, individuals in Study 2 were punished in one of two ways. One individual in each pair was described as receiving a relatively severe punishment (going to jail) whereas the other individual was described as receiving a relatively

less severe punishment (going to time-out). To ensure that children understood that going to jail was relatively more severe than going to time-out, the experimenter provided detailed descriptions of both the jail and the “time-out house.” For example, participants learned that individuals who went to jail could never choose what they did, but that individuals who went to time-out could sometimes choose what they did. Additionally, children viewed pictures of each punishment environment as it was described to help them differentiate between the two types of punishment. When learning about individuals who were incarcerated, participants viewed pictures of stick figures standing in a jail cell. When learning about individuals who went to time-out, participants viewed pictures of stick figures standing in a room without jail bars (see Supplementary Materials for an example).

After describing the punishment each individual received, the experimenter asked children the first of two test items to gauge their understanding of the story (e.g., “Can you remind me, where was Frank taken? Was he taken to jail, or was he taken to the ‘time-out house?’”). Each of the test items focused on one individual in the pair. Following the first test item, participants answered four yes-or-no items probing their views of how severely the individual in that item was punished (e.g., “Do you agree that going to jail is a big punishment for Frank? Yes, or no?”). The experimenter followed up each item with a more fine-grained item (“How sure are you? Are you very sure, kind of sure, or not very sure?”). We assigned responses numerical values from -3 (indicating the least severity, e.g., very sure that the punishment is not severe) to +3 (indicating most severity, e.g., very sure that the punishment is severe).

During Part III, participants rated the extent to which the individual highlighted in the first test item wanted to avoid a similar punishment in the future. In doing so, participants answered four yes-or-no items (e.g., “Do you agree that Frank does not want to live in the jail

again? Yes, or no?”). The experimenter followed up each item with additional, more fine-grained items (“How sure are you? Are you very sure, kind of sure, or not very sure?”). We assigned responses assigned numerical values from -3 (indicating least desire to avoid punishment, e.g., very sure that the individual does *not* want to avoid punishment in the future) to +3 (indicating most desire to avoid punishment, e.g., very sure that the individual *wants* to avoid punishment in the future). The purpose of asking these items was to test whether the desire to avoid future punishment could explain the relation between punishment type and the degree to which individuals are perceived to change as a result of punishment. However, these items did not become a central component of our analyses because we did not find a significant difference in children’s responses to items probing moral change following jail compared to those probing moral change following time-out (see Results section for additional details). Given this non-significant difference, we do not discuss the mediation analyses further.

During Part IV, the experimenter told participants that the individual discussed in the first test item finished serving time in either the jail or the “time-out house” and returned home. Participants then answered four yes-or-no items about the punished individual’s positive moral characteristics; these items were identical to the items asked about the same individual in Part I. The purpose of having a “baseline” measure of moral character (i.e., before individuals were punished) and a post-punishment measure of moral character was to examine the extent to which participants viewed punishment as a vehicle for moral change. As in Study 1, measuring perceived moral character at baseline (i.e., before individuals’ punishment) and following the punishment allowed us to tabulate the extent to which participants perceived punishment as eliciting moral improvement, moral decline, or no change in moral character.

After recording children's responses to items in Parts I-IV, the experimenter said, "Okay, so now I am going to tell you the rest of the story about [name of the second individual in the first pair]." Following these instructions, the experimenter asked children an additional test item about how the second individual in the pair was punished (e.g., "Can you remind me, where was Bobby taken? Was he taken to jail, or was he taken to the 'time-out house'?"). If children provided an incorrect response, the experimenter reminded participants of the correct answer. Next, the experimenter reminded participants about the details of the second individual's punishment (e.g., "So remember, when he was in the 'time-out house,' people sometimes told Bobby what to do"). The experimenter then asked participants items analogous to those asked about the first individual in Part II (four items about how severely the *second individual* was punished), Part III (four items about how much the *second individual* wanted to avoid a similar punishment in the future), and Part IV (four items about the *second individual's* moral character after punishment). After answering all items about the first pair of individuals (in the example above, the "mean" pair), participants completed the same procedure for the second pair of individuals (in this case, the "nice" pair).

The following items were counterbalanced across participants in Study 2: (1) the order in which individuals within a pair were introduced, (2) the order in which participants learned about the "nice" and "mean" pairs of individuals, (3) the order of experimental items (e.g., items about whether an individual is morally good), (4) the placement of individuals within each trial (e.g., the individual who went to jail was sometimes on the left side of the screen and sometimes on the right side).

Results

Perceived severity of time-out versus jail. To determine whether our manipulation of punishment severity was effective, we first compared children's views of the severity of going to jail versus time-out. After determining that each set of items probing the perceived severity of going to jail ($\alpha_{\text{nice}} = .68$, $\alpha_{\text{mean}} = .74$) and time-out ($\alpha_{\text{nice}} = .79$, $\alpha_{\text{mean}} = .71$) had acceptable reliability, we collapsed items in each condition into separate variables; see Supplementary Materials for descriptive statistics for each set of items in Study 2. Subsequently, we used a series of paired-samples *t*-tests to compare punishment severity scores in each condition. The manipulation of perceived severity across punishment types worked as intended: children viewed jail as a more severe punishment than time-out in both conditions ("nice" condition: $t(73) = 16.43$, $p < .001$, Cohen's $d = 1.91$, 95% CI_{diff} : [3.26, 4.16]; "mean" condition: $t(74) = 19.19$, $p < .001$, Cohen's $d = 2.22$, 95% CI_{diff} : [3.29, 4.05]).

Evaluations of "nice" individuals. We investigated participants' responses using two types of analyses (Figure 4.3). First, we examined the extent to which participants reported that "nice" individuals changed after each type of punishment. Items probing views of moral goodness at each time point had acceptable reliability in both conditions (jail: $\alpha_{\text{before}} = .69$, $\alpha_{\text{after}} = .86$; time-out: $\alpha_{\text{before}} = .86$, $\alpha_{\text{after}} = .76$). Thus, we collapsed across items for each time point. As in Study 1, the main dependent variable was the difference in perceived moral character before and after punishment. Subsequently, we used a series of one-sample *t*-tests to compare perceived change scores to 0 in both conditions. Children did not report that "nice" individuals' characteristics changed after experiencing either form of punishment (going to jail: $t(73) = -1.70$, $p = .093$, Cohen's $d = -.20$, 95% CI_{diff} : [-.41, .03]; time-out: $t(73) = -2.23$, $p = .029$, Cohen's $d = -.26$, 95% CI_{diff} : [-.54, -.03]; note that the effect for the time-out condition drops to non-significance after applying a Bonferroni correction). Next, we conducted a paired-samples *t*-tests to compare

perceived change scores in the jail and time-out conditions. No significant difference in perceived change emerged ($t(73)=.87, p=.388$, Cohen's $d=0.10$, 95% CI_{diff} : [-.12, .32]).

Evaluations of “mean” individuals. Once again, we investigated participants' responses using two types of analyses (Figure 4.3). First, we examined the extent to which participants reported that “mean” individuals became “nicer” after each type of punishment. After determining that items probing views of moral character at each time point had acceptable reliability in both conditions (jail: $\alpha_{before}=.66; \alpha_{after}=.87$; time-out: $\alpha_{before}=.79; \alpha_{after}=.86$), we collapsed across items for each time point. Again, the main dependent variable was the difference in perceived moral character before and after punishment. First, we used a series of one-sample t -tests to compare perceived change scores to 0 in both conditions. Children reported that “mean” individuals became significantly “nicer” after going to jail ($t(74)=14.15, p<.001$, Cohen's $d=1.63$, 95% CI_{diff} : [2.80, 3.72]) and, separately, after going to time-out ($t(74)=12.71, p<.001$, Cohen's $d=1.47$, 95% CI_{diff} : [2.58, 3.54]). Next, we conducted a paired-samples t -tests to compare perceived change scores in the jail and time-out conditions. A significant difference did not emerge ($t(74)=1.03, p=.305$, Cohen's $d=.12$, 95% CI_{diff} : [-.18, .60]).

Discussion

Study 2 conceptually replicated and extended the results from Study 1 among a new sample of children. As in Study 1, children in Study 2 reported that “mean” individuals become “nicer” after punishment. Also as in Study 1, we did not observe that children in Study 2 reported that “nice” individuals would change as a result of punishment. In other words, children in Study 2 appeared to view punishment as a vehicle for positive moral change. Additionally, Study 2 examined whether the effects from Study 1 depend on the severity of punishment. Although children in Study 2 reported that going to jail was a more severe punishment than

going to time-out, they expected “mean” individuals to become “nicer” regardless of whether they went to time-out or jail. Importantly, the degree of reported moral improvement did not significantly differ across punishment contexts. However, null effects are difficult to interpret; it is possible that the degree of reported moral improvement differs across punishment contexts, and the current work failed to capture this difference. Thus, caution is warranted in interpreting this result. Nevertheless, these findings suggest that children may view multiple forms of punishment as a signal of redemption.

General Discussion

The current work examined children’s and adults’ views about the impact of punishment on moral character. In Study 1, elementary schoolers and adults reported on the extent to which one especially severe form of punishment (incarceration) impacted “nice” and, separately, “mean” individuals’ moral character. Children, but not adults, reported that “mean” individuals became “nicer” following severe punishment. Moreover, we did not find evidence that children viewed “nice” individuals as changing following severe punishment. Adults, unlike children, reported that “nice” individuals became less “nice” following severe punishment. These findings suggest that children, but not adults, may view at least one type of severe punishment as a vehicle for positive moral change.

Study 2 built on these results by investigating the extent to which children’s beliefs about the impact of punishment on moral character depend on punishment severity. Here, children reported on the extent to which “nice” and, separately, “mean” individuals’ moral character changed following a relatively minor punishment (time-out) and, separately, a relatively severe punishment (incarceration). Despite acknowledging that incarceration is a more severe type of punishment than time-out, children reported that “mean” individuals became “nicer” regardless

of punishment type. Importantly, the degree of reported moral improvement among “mean” individuals did not significantly differ across punishment types, suggesting that children may conceptualize punishment—regardless of how severe—as a signal of moral redemption.

The present findings make theoretical contributions to several bodies of scholarship. First, the current work expands scientific understanding of social cognitive development. Past work led to two competing possibilities regarding how views about the impact of punishment on moral character might differ among children and adults. On the one hand, elementary schoolers are more likely than adults to view the social world through an essentialist lens (e.g., Chalikh et al., 2017; Hussak & Cimpian, 2019; Heiphetz et al., 2017; Taylor et al., 2009), including when reasoning about moral character (Heiphetz, 2019, 2020). In other words, elementary schoolers are typically more likely than adults to view human characteristics—including moral character—as unchangeable, innate, and rooted in biology. Thus, elementary schoolers could be less likely than adults to report that punishment changes moral character. On the other hand, elementary schoolers typically express more optimism than adults (e.g., Boseovski, 2010). Thus, compared to adults, elementary schoolers could be more optimistic that punishment may improve moral character. The results of Study 1 were consistent with the second possibility, showing that elementary schoolers—but not adults—viewed one especially severe type of punishment (incarceration) as helping “mean” individuals become “nicer.” This finding jointly contributes to theories regarding the development of essentialism as well as optimism by showing that children’s positivity may overpower their tendency to apply an essentialist framework to moral character.

Second, the present work adds to theoretical models of punishment by demonstrating that people expect punishment to change others’ moral characteristics. In both Studies 1 and 2,

children reported that “mean” individuals became “nicer” following punishment. Moreover, adults in Study 1 reported that “nice” individuals’ positive moral characteristics worsened following punishment. These findings are noteworthy in light of past work investigating the link between perceived moral character and punishment. Namely, past work has shown that perceived immoral character increases punitive outcomes even when behavior is held constant (e.g., Nadler & McDonnell, 2011). The current work extends this research by showing that punishment also impacts perceptions of punished individuals’ moral character. In other words, the current work demonstrates the reverse directional link by showing that punishment impacts perceived moral character.

Third, the current work contributes to work in experimental jurisprudence. Many legal theorists discuss the expressive nature of punishment (e.g., Feinberg, 1965; Kahan, 1996; Murphy & Hampton, 1988). However, relatively less research has empirically examined how laypeople interpret the message communicated via punishment. The current work addressed this topic and found that children, but not adults, may interpret punishment as expressing a social message that “mean” individuals have changed for the better. Put slightly differently, the present work suggests that children may conceptualize punishment as a vehicle for moral redemption; however, over development, the conceptualization of punishment-as-redemption declines. In addition to elucidating how people interpret punishment’s message, the present work examined the assumption made by some expressive punishment theorists that punishment needs to be severe in order to be communicative (Feinberg, 1965; Hart, 1959; Murphy & Hampton, 1988). The results of Study 2 suggest that there may be nuance to this view. While it is possible that only messages emitted by severe punishments are audible to adults, the current work suggests that, among children, punishment need not be severe in order be communicative. Here, children

reported that both severe (incarceration) and relatively minor (time-out) punishments help “mean” individuals become “nicer.” Thus, at least among children, punishment does not need to be severe in order to be communicative.

Limitations and Directions for Future Research

The present work provides critical insight into how laypeople conceptualize the impact of punishment on moral character. In doing so, the current research clarifies an understudied topic within psychology (incarceration) and leverages experimental methods to answer questions that have traditionally been the purview of legal scholars and philosophers (e.g., what punishment communicates). Nevertheless, the present work is limited in some ways, and several additional questions remain ripe for future investigation.

One limitation of the current work is that it did not focus on *why* children and adults reported different views of the impact of severe punishment on moral character. Thus, a fruitful direction for future research concerns identifying potential mechanisms underlying this pattern of results. One possibility—the *optimism account*—posits that domain-general age-related changes in social cognition may underlie differences in children’s and adults’ responses. As discussed in the Introduction, elementary schoolers—the age range tested in the current research—are typically more optimistic than adults (e.g., Boseovski, 2010). Importantly, past research has documented age-related declines in optimism regarding different types of characteristics (moral and non-moral) in several domains. For instance, children are more likely than adults to endorse the idea that people’s physical appearance, intellectual ability, and moral characteristics will improve substantially over time (e.g., predicting that people will become better looking, smarter, and nicer with time, Heyman & Giles, 2004; Lockhart et al., 2008). Thus, domain-general age-related decreases in optimism may help explain why children—but not adults—reported that

“mean” individuals became “nicer” after incarceration and, separately, why only adults expected “nice” individuals’ moral character to worsen following punishment.

Alternatively, the *social input account* posits that cultural messages shape conceptual representations of carceral facilities over development, which, in turn, may alter views about the impact of incarceration on moral character. Prior work argues that people living in the United States primarily “form their impressions of crime and the criminal legal system based on what they hear, read, and see in the media” (Yousman, 2009, p. 1). Importantly, people living in the United States typically consume media that portray prisons and jails as dangerous, torturous, and rife with violence (Bennett, 2006; Yousman, 2009). Given that social input shapes conceptual development (e.g., Chalik et al., 2017; Gelman, 2009), such messages could influence people’s views about the impact of incarceration on moral character across age. Specifically, as children grow into adults, they may come to view carceral environments as less rehabilitative because of the negative messages they hear about incarceration (e.g., through the media). Thus, adults in the current work may have reported pessimism about the impact of incarceration on moral character because over time they have consumed—and subsequently accepted—media messages portraying carceral facilities as inhospitable to moral improvement.

Future work can test between these two candidate mechanisms by modifying the procedure to Study 2 to include both children and adults in the same experimental paradigm. As previously mentioned, some evidence suggests that age-related declines in optimism are domain-general (e.g., Boseovski, 2010); thus, adults’ relative pessimism about incarceration may also generalize to other types of punishment. Consistent with the *optimism account*, adults may be less likely than children to report that either incarceration or time-out improves moral character. However, consistent with the *social input account*, adults’ negativity may be specific to

incarceration (given that media transmit far more negative messages about incarceration than time-out). If this is the case, (1) adults may report more pessimism about the impact of incarceration on moral character than children, and (2) children and adults may report similarly optimistic views about the impact of time-out on moral character.

Another way to test between the two aforementioned potential mechanisms includes employing cross-cultural methods. Legal scholars have described criminal punishment in Europe as having a different “flavor” than criminal punishment in the United States. Unlike in the United States, criminal punishment in Europe “embraces ideals of rehabilitation and forgiveness” (Kleinfeld, 2016, p. 1035). Individuals growing up in Europe may attend to such cultural messages linking punishment with rehabilitation and positive change. In turn, European adults may view punishment as indicative of moral redemption. Thus, there may be greater developmental stability in reasoning about the impact of punishment on moral character in Europe than in the United States. Such a result would suggest that social input (e.g., media, cultural messages) shapes people’s concepts about what it is like to spend time in a carceral facility and, thus, provide evidence in favor of the *social input account*.

In addition to testing between the *optimism* and *social input accounts*, future work can examine which aspects of United States carceral facilities underlie adults’ pessimism. For example, the severity associated with incarceration may drive adults’ pessimism regarding this specific type of punishment. When addressing this topic, it may be particularly useful to manipulate severity in punitive contexts other than incarceration. Doing so may be particularly helpful considering that several factors could potentially influence participants’ responses to items about incarceration. For example, a future study can ask participants to reason about a long time-out (a relatively severe punishment) and, separately, a short time-out (a relatively minor

punishment). If adults are more pessimistic about the long (versus short) time-out, this may suggest that adults view punishment severity—a key component of incarceration—as inimical to moral improvement.

Finally, the current work is limited in that it probed adults' views of only one process—namely, severe punishment—as a means for moral improvement. We focused on severe punishment because this is a common response to perceived moral transgression, especially in the United States (e.g., Alexander, 2012). However, future research can examine whether less punitive responses to transgression improve perceived moral character. The current work suggests that adults are pessimistic about one particularly severe form of punishment (incarceration). However, it is unclear whether adults are pessimistic specifically about incarceration or about punishment in general. Recent scholarship provides initial evidence in favor of the former possibility, showing that 14- to 18-year-olds view relatively mild forms of punishment as effective in preventing recidivist behavior (Robichaud & Mageau, 2020). These findings thus provide initial evidence that, even beyond the elementary school years, people may view some forms of punishment as effective in catalyzing moral improvement.

Such a finding may have important practical implications. Converging lines of evidence suggests that severe punishment can negatively affect psychological and physical well-being. For instance, incarcerated individuals are up to ten times more likely than non-incarcerated individuals to experience depression, anxiety, and other trauma-based symptoms (Haney, 2012). If people believe that less punitive responses are also effective in improving moral character, they may be amenable to supporting criminal legal policies that champion alternative approaches to severe punishment. Thus, understanding perceptions of punishment could be an important component of criminal legal reform.

Conclusion

Uniting work on developmental psychology, moral cognition, and experimental jurisprudence, the current research examined children's and adults' views about the impact of punishment on moral character. Children reported that punishment—regardless of how severe—catalyzed positive moral change among “mean” individuals. This finding suggests that, at times, children's optimism can overwhelm their tendency to view moral character as immutable. Unlike children, adults expected that “nice” individuals' positive qualities worsen following punishment. Further, we did not find evidence that adults expected punishment to help “mean” individuals become “nicer.” These findings marshal evidence suggesting that people in the United States become increasingly pessimistic about the impact of punishment on moral character with age. In doing so, the current work suggests that adults living in the United States may believe that redemption is not for everyone, or, at the very least, that a specific form of severe punishment (incarceration) is not the way to achieve it.

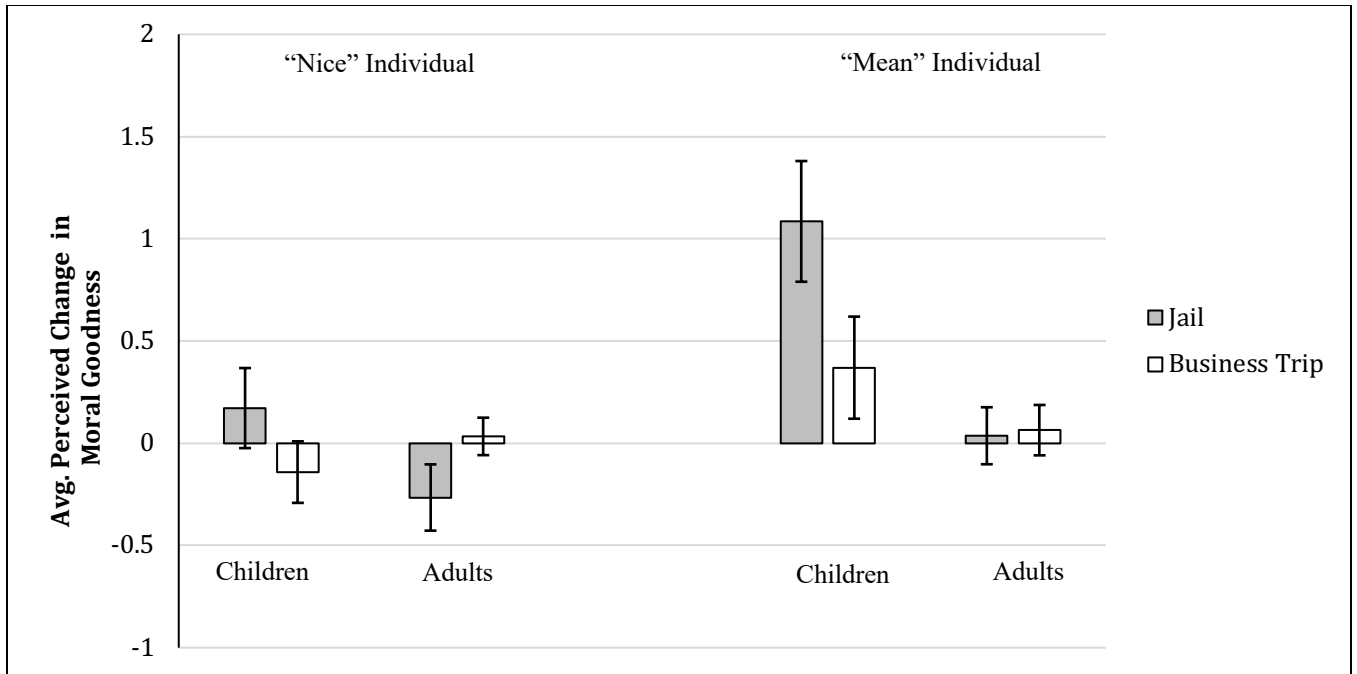


Figure 4.1. Average perceived change in moral goodness, Study 1. Positive values reflect perceived increases in moral goodness, whereas negative values reflect perceived decreases in moral goodness. Zero indicates no perceived change in moral goodness. Error bars represent 95% confidence intervals.

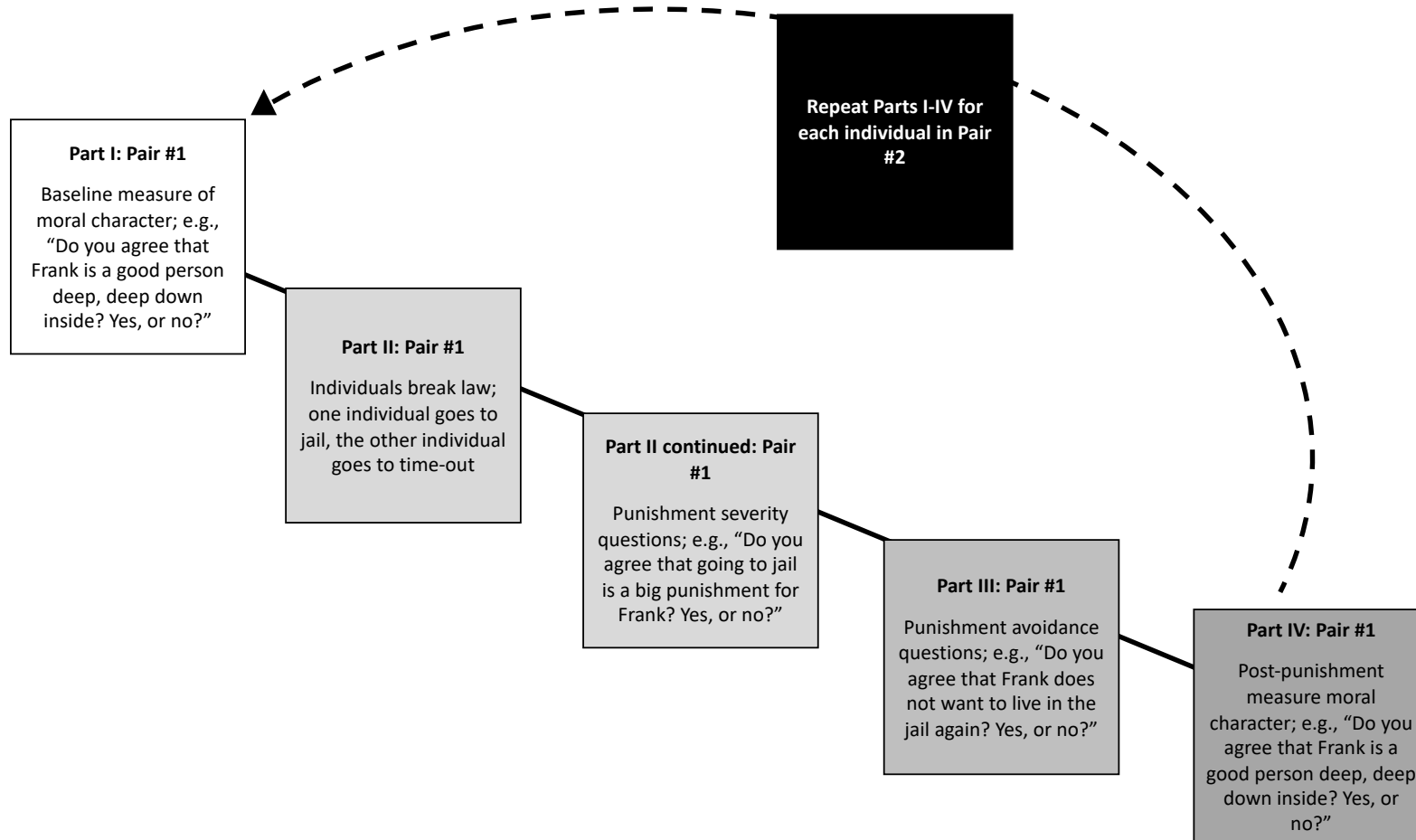


Figure 4.2. A schematic representation of Study 2’s procedure. As noted in Study 2’s procedure, participants finished responded to items in each block before moving on to the next block; all participants responded to items in each block in the order depicted above.

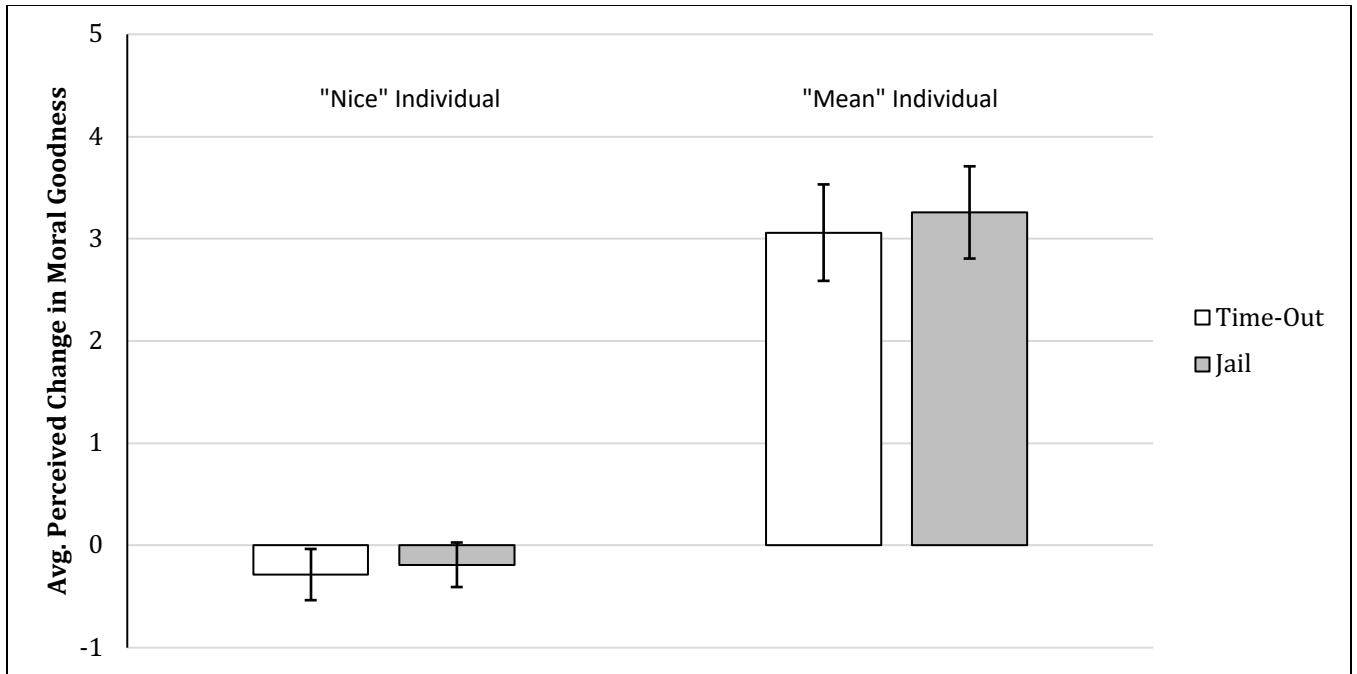


Figure 4.3. Average perceived change in moral goodness, Study 2. Positive values reflect perceived increases in moral goodness, whereas negative values reflect perceived decreases in moral goodness. Zero indicates no perceived change in moral goodness. Error bars represent 95% confidence intervals.

Introduction to Chapter 5

Chapter 4 began to investigate laypeople's inferences about punishment's *future*-oriented messages by probing the extent to which children and adults understand punishment as signaling moral change within a punished individual. In Chapter 4, children—but not adults—understood punishment as signaling that a punished individual has been redeemed. Importantly, adults in Chapter 4 indicated that certain forms of punishment (i.e., incarceration) signal that a punished individual has experienced moral degradation. Together, the studies in Chapter 4 suggested that (a) laypeople understand punishment as communicating future-oriented messages and (b) laypeople's understanding of such messages change throughout development. Chapter 5 built on Chapter 4 by investigating laypeople's inferences about punishment's future-oriented messages in a complementary way—by examining the extent to which people understand punishment as communicating messages about *intergenerational* immorality. That is, Chapter 5 asked whether people understand punishment as conveying morally relevant information about future generations of individuals related to punished individuals (i.e., children of incarcerated parents). If so, such a finding would contribute to scholarship on the expressive theory of punishment by demonstrating that punishment's messages are so powerful that they even communicate information about individuals who are not directly implicated in punishment-related scenarios.

Chapter 5:

Children's Socio-Moral Judgments and Behaviors toward Peers with and without Incarcerated Parents

Please note, chapter under review as:

Dunlea, J. P., Goel, D., & Heiphetz, L. (Under review). Children's socio-moral judgments and behaviors toward peers with and without incarcerated parents.

Abstract

Adults living in the United States often respond negatively toward children with incarcerated parents. Yet, the socio-moral processes that lay the foundation for such negativity remain unclear. We addressed this topic by probing children's (175 5- to 6-year-olds, 156 7- to 8-year-olds) inferences about peers with and without incarcerated parents. Children reported less certainty that peers whose parents were, versus were not, incarcerated possess moral beliefs (Study 1). Among older children, inferences about parental absence did not fully account this pattern of results (Study 2). Across studies, children behaved less generously toward peers whose parents were, versus were not, incarcerated. These studies shed light on how early systems of socio-moral judgment may contribute to negativity toward children with incarcerated parents.

Keywords: moral cognition; punishment; social cognitive development

Children’s socio-moral judgments and behaviors toward peers with and without incarcerated parents

As of 2020, nearly 2.3 million people in the United States were incarcerated (Sawyer & Wagner, 2020). Most proximally, incarceration impacts individuals who are behind bars. While incarcerated, people in the United States often live in degrading conditions (e.g., Forbes, 2016; Hopwood, 2021) and lose many of their freedoms, including the right to privacy (Goring, 1984), certain aspects of the freedom of speech (Vogelman, 1968), and in some cases, the right to vote (National Conference of State Legislatures, 2021). Beyond impacting those spending time behind bars, incarceration negatively impacts their families, including children. Between 1991 and 2007, the number of children with incarcerated fathers rose by 77%, while the number of children with incarcerated mothers increased by 131% (Glaze & Maruschak, 2010). More recently, estimates suggest that more than 5.7 million children in the United States, a majority of whom are minoritized on the basis of race or ethnicity (Elderbroom et al., 2018), have experienced parental incarceration at some point in their lifetime (Gotsch, 2018).

Though incarceration includes a multitude of losses, it does not typically inspire the types of responses that other losses do. Institutional actors often respond to incarcerated and formerly incarcerated individuals with scorn and judgment (e.g., Forbes, 2016; Van Cleve, 2016), and this disapproval spills over into judgments of their children. Teachers, social workers, and other community stakeholders often exhibit negativity toward children with incarcerated parents (Phillips & Gates, 2010). For instance, adults often view children with incarcerated parents as “the apple who did not fall far from the tree” (Krupat, 2007, p. 40) and as destined toward a life of crime (Murray et al., 2012). In addition to making negative inferences about children with

incarcerated parents, adults readily withhold resources from them, and these children often experience material hardship as a result (e.g., Murray et al., 2012; Phillips & Gates, 2010).

While this literature has highlighted the intergenerational consequences of legal punishment within the United States, less work has examined the psychological processes that may contribute to negativity toward children with incarcerated parents. The current work addressed this topic by examining how early systems of socio-moral processes may lay the foundations for such negativity. We began to address this topic by probing elementary schoolers' perceptions of peers whose parents were, versus were not, incarcerated. Specifically, we examined elementary schoolers' inferences regarding the extent to which peers whose parents were, versus were not, incarcerated possess moral beliefs. Several prior studies have examined children's evaluations and expectations of others' morally relevant behaviors (e.g., Bregant et al., 2019; Chalik & Rhodes, 2014; Liberman et al., 2018; Marshall et al., 2020). However, relatively less work has focused on children's inferences about the potential precursors of such morally relevant behaviors—namely, moral beliefs. Given that behaviors can arise from beliefs (e.g., Hommel, 2003), the current work focused on children's inferences about peers' socio-moral beliefs.

We recruited elementary schoolers to test between two competing possibilities regarding the extent to which children's views might change throughout the elementary school years. On the one hand, older children may report more pessimism that peers whose parents were, versus were not, incarcerated possess moral beliefs. This possibility is consistent with work suggesting that younger children are typically more optimistic than older children (Boseovski, 2010). This possibility is also consistent with scholarship suggesting that, with age, elementary schoolers increasingly make negative moral inferences about out-group members (e.g., Liberman et al.,

2018). A similar pattern may emerge in our work: with age, elementary schoolers who do not have an incarcerated parent themselves may become increasingly pessimistic that peers whose parents are, versus are not, incarcerated possess moral beliefs.

On the other hand, both younger and older children may report similar levels of pessimism that peers whose parents are, versus are not, incarcerated possess moral beliefs. Beginning early in development, children make inferences about individuals based on those individuals' social relationships. By preschool, children expect people who have a close relationship with each other to share knowledge (Lieberman et al., 2020) and use information about relationships to infer how people within a given social network might think and behave (e.g., Chalik & Rhodes, 2014). By extension, even the youngest children in our work may make judgments about incarcerated individuals and use these judgments to make inferences about peers with incarcerated parents. Critically, elementary schoolers often view incarcerated individuals as possessing negative internal characteristics (e.g., bad moral character, immoral desires, Dunlea & Heiphetz, 2020). Because even young children draw negative inferences about punished individuals and also make inferences about individuals based on social relationships, both younger and older participants in our work may report similar levels of pessimism regarding the extent to which peers with incarcerated parents possess moral beliefs.

In addition to probing elementary schoolers' inferences about others' moral beliefs, we examined their views of others' conventional beliefs (e.g., thinking it is wrong to break the rules of a game). This approach allowed us to clarify whether negativity toward children with incarcerated parents stems from inferences about their moral beliefs or, more generally, inferences about their normative beliefs. Children typically respond negatively toward individuals who act in ways that counter either moral or conventional norms (e.g., Ingram &

Bering, 2010). By extension, children's negativity toward peers with incarcerated parents may stem from relatively broad inferences about their normative beliefs. However, there is reason to think that negativity toward children with incarcerated parents largely stems from inferences about their moral beliefs. Critically, children typically respond *more* negatively toward individuals who act counter to widely shared moral beliefs than those who act counter to conventional beliefs (e.g., Hardecker et al., 2016; Smetana et al., 2018). Because negativity toward children with incarcerated parents is so robust (e.g., Phillips & Gates, 2010), it may primarily stem from pessimistic inferences about these children's moral beliefs (often linked with relatively intense negativity) as compared to pessimistic inferences about conventional beliefs (often linked with relatively less negativity).

Alongside clarifying whether negativity toward children with incarcerated parents stems from inferences about their moral beliefs or, more broadly, about their normative beliefs, probing inferences about moral and conventional beliefs allowed us to contribute to literature on children's reasoning about different norms. Past work on this topic has typically asked children about both types of norms as a way of elucidating the extent to which children differentiate between norm types (e.g., Hardecker et al., 2016; Josephs & Rakoczy, 2016; Liberman et al., 2018; Smetana, 1981), finding that children typically distinguish moral from conventional norms (Yucel et al., 2020). However, the extent to which children differentiate between norm types when making inferences about others' beliefs remains unclear. Asking about both moral and conventional norms allowed us to address this topic.

Finally, in addition to probing elementary schoolers' inferences about others' beliefs, we examined their pro-social behaviors toward peers whose parents were, versus were not, incarcerated. This approach allowed us to examine the extent to which age-related changes

concerning children's belief attributions and pro-social behaviors parallel one another. Social psychology has engaged in long-standing conversations about the extent to which mental states are associated with behaviors (e.g., the extent to which negative evaluations of group members co-occur with negative behaviors toward those group members, Carter et al., 2020; LaPierre, 1934). Including variables measuring both cognition and behavior allowed us to investigate the extent to which these processes might be linked relatively early in development.

To address the topics discussed above, we recruited 5- to 6-year-olds and 7- to 8-year-olds. Testing children in this age range was important for two main reasons. First, prior work suggests that, around age 7, children begin to report relatively more pessimism about out-group members' morally relevant characteristics (e.g., Liberman et al., 2018). Thus, testing children in these groups allowed us to extend, and compare our results with, previous scholarship examining age-related changes in children's group-based reasoning. Second, children of this age readily attend to others' beliefs, including those that are morally relevant (e.g., Heiphetz et al., 2014). Therefore, recruiting 5- to 8-year-olds allowed us to probe children's inferences about others' normative beliefs. Third, children of this age can reason about legal punishment and those affected by it (Bregant et al., 2016; Dunlea & Heiphetz, 2021; Dunlea et al., 2020). Thus, we could investigate children's views of peers whose parents were incarcerated.

Overview of the Current Work

Two studies examined children's socio-moral judgments and behaviors toward peers with and without incarcerated parents. Study 1 investigated this topic by asking elementary schoolers to indicate the extent to which peers whose parents were, versus were not, incarcerated possessed moral beliefs. Study 2 sought to determine whether the results observed in Study 1 would replicate in a new sample and to probe several questions arising from these results, including (a)

whether the responses in Study 1 were driven by reasoning about parental absence generally rather than incarceration specifically and (b) whether these responses might reflect a broader failure to attribute mental states to children with incarcerated parents or a more specific hesitation to attribute *moral* beliefs. In addition to probing children's moral judgments, both studies also measured their pro-social behaviors toward peers whose parents were, versus were not, incarcerated. In both studies, the majority of participants did not have an incarcerated parent themselves.

Across studies, we specifically probed children's socio-moral responses to peers with incarcerated mothers, as opposed to fathers. As discussed more fully in the procedure for Study 1, below, we did so because younger children generally have a more robust understanding of how mothers, as opposed to fathers, shape children's personal attributes (Goldman & Goldman, 1983; Johnson & Salomon, 1997). Additionally, asking about mothers allowed us to extend scholarship on parental incarceration. Perhaps because there are fewer incarcerated women than incarcerated men in the United States (Bronson & Carson, 2019), scholarship on parental incarceration has primarily focused on *paternal* incarceration (e.g., Andersen & Wildeman, 2014; Haskins, 2015; Turney, 2015). The current work thus broadens the scope of past scholarship on parental incarceration by focusing on mothers.

Study 1

Study 1 investigated the extent to which children attributed moral and conventional beliefs to peers whose parents were, versus were not, incarcerated. Additionally, we examined elementary schoolers' pro-social behaviors toward both groups of peers. We collected data for Study 1 between Winter 2019 and Summer 2019.

Method

Participants. Participants included 91 5- to 6-year-olds ($M_{\text{age}}=5.47$ years, $SD_{\text{age}}=.50$ years; 56% female, 44% male; 41% White or European-American, 18% Black or African-American, 15% Asian or Asian-American, 1% Native American or Pacific Islander, 19% multiracial, 4% other/not listed, remainder unspecified; 21% Hispanic or Latine [our demographic questionnaire asked about ethnicity separately from race]) and 71 7- to 8-year-olds ($M_{\text{age}}=7.64$ years, $SD_{\text{age}}=.48$ years; 52% female, 48% male; 37% White or European-American, 21% Black or African-American, 14% Asian or Asian-American, 14% multiracial, 7% other/not listed, remainder unspecified; 18% Hispanic or Latine). Initially, we planned to include a mediator in Study 1 that would have required approximately 70 children per age group to detect our expected effect. We powered our study based on this analysis and overrecruited younger children because we expected that some data would not be usable (e.g., due to failure to understand the experimental items). As noted below, we used data from most participants in each age group.

The mediator used a switched-at-birth task (Gelman & Wellman, 1991) to test the extent to which children viewed contact with the legal system as heritable. Children learned about a baby who was born to an incarcerated mother but raised by a non-incarcerated mother and indicated (a) whether or not the baby would come into contact with the legal system after growing up, and (b) how sure they were of their answer. We asked about multiple types of contact with the legal system, including going to jail, being a criminal, and breaking the law. For each item, we created a scale where the low anchor indicated certainty that the character *would not* come into contact with the legal system and the high anchor indicated certainty that the character *would* come into contact with this system. We then averaged across the three types of contact with the legal system to create one composite score. Responses to this measure did not

reliably mediate the relation between participant age and any of our dependent measures (moral belief attributions, conventional belief attributions, resource allocation). We also failed to find significant mediation when using only the item about future incarceration, which was most closely related to the dependent measure (which asked about incarceration specifically and did not directly probe other forms of contact with the legal system). Although children may view contact with the legal system as heritable to some extent (Heiphetz, 2020), and children also use information about parental incarceration to draw conclusions about their peers' moral characteristics, the current study did not find strong evidence that these two processes are related to each other. Study 2 did not measure perceptions of heritability.

We excluded data from two 5- to 6-year-olds and two 7- to 8-year-olds due to parental interference ($n=3$) and experimenter error ($n=1$). The main pattern of results reported below emerged even when we opted not to exclude any participants from analyses. We recruited children from a departmental database and from a children's museum, both located in a large city in the northeastern United States, and from a public library in a large suburb in the midwestern United States. Here and in Study 2, families signed up for inclusion in the departmental database either in person (at public street fairs, public parks, and the aforementioned children's museum) or by visiting our laboratory's website. Any family with eligible children could participate. As in other studies (e.g., Dunlea & Heiphetz, in press; Marshall et al., 2020), recruitment method did not reliably predict children's responses. All children received a small prize such as a sticker.

Fifteen parents reported that their child (seven 5- to 6-year-olds and eight 7- to 8-year-olds) knew someone who has been incarcerated; however, this variable did not reliably predict participants' responses (see Supplementary Materials for relevant analyses). Here and in Study 2, we also conducted a series of exploratory analyses examining the extent to which participant race

and ethnicity predicted participant responses. Although people who are minoritized on the basis of race and ethnicity often have very different experiences in the criminal legal system than members of racial and ethnic majority groups (e.g., Forbes, 2016; Van Cleve, 2016), neither of these variables reliably predicted participants' responses; see Supplementary Materials for relevant analyses.

Procedure. An experimenter tested children individually in a quiet room. At the start of each testing session here and in Study 2, the experimenter told children that they would answer questions about other people and that there were no right or wrong answers. The remainder of the study progressed in two parts (Blocks I and II).

Block I examined children's inferences about others' beliefs. The experimenter showed children pictures of eight pairs of stick figure characters, one pair at a time, on a Power Point display. During each trial, the experimenter pointed to each character and described them as being born to a mother who either had never gone to jail or was currently in jail (e.g., "See this person right here? [He/She] was born to a mom who is in jail right now. See [his/her] mom right here? And see this person right here? [He/She] was born to a mom who has never gone to jail. See [his/her] mom right here?"). The experimenter then asked children a test item to gauge their understanding of the story ("Can you point to the person whose mom is in jail right now?"). All but one child answered this question correctly on the first try; the participant who answered incorrectly received corrective feedback and provided the correct answer on her second try. The experimenter referred to the characters using pronouns matching the child's reported gender.

Although most people incarcerated in the United States are male (Bronson & Carson, 2019), the experimenter referred to the incarcerated individual as a mother in both Studies 1 and 2. We asked children about incarcerated mothers because younger elementary school-aged

children generally have a more robust understanding of how mothers, as opposed to fathers, contribute to children's personal characteristics (e.g., morally-relevant attributes, Johnson & Salomon, 1997; Springer, 1996; Williams & Tolmie, 2000) and development (e.g., Goldman & Goldman, 1983). If we had asked about fathers, it would be unclear whether any age-related effects emerged because of developmental changes in socio-moral reasoning or in how children understand the link between fathers and children. Asking about mothers allowed us to circumvent this concern. Additionally, as previously mentioned, asking about mothers allowed us to extend literature on parental incarceration. Despite the fact that maternal incarceration in the United States has eclipsed the rate of paternal incarceration (Equal Justice Initiative, 2020; Glaze & Maruschak, 2010), literature on parental incarceration has primarily focused on fathers (e.g., Andersen & Wildeman, 2014; Haskins, 2015; Turney, 2015). Asking about mothers thus broadens the scope of past scholarship on parental incarceration.

Next, the experimenter asked the participant which of the two characters held a certain moral or conventional belief. During each trial, the experimenter said, "One person here thinks that [X] is wrong. Can you point to the person who thinks that [X] is wrong?" For items probing participants' perceptions of others' moral beliefs, X included the following phrases: "pushing another person down on the playground," "making another person cry on purpose," "stealing another person's toy," and "hitting another person." For items probing participants' perceptions of others' conventional beliefs, X included the following phrases: "breaking the rules of a game," "not saying 'please' when asking for something," "talking in class without raising your hand," and "wearing pajamas to school." After participants indicated their response directly to the experimenter, the experimenter followed up each initial item with an additional, more fine-grained item ("Are you very sure, kind of sure, or not very sure about that?"). We took this two-

step approach from prior work in developmental psychology (e.g., Bregant et al., 2016; Dunlea & Heiphetz, 2021) and adapted all experimental items from work probing children's views of moral and conventional norms (Lieberman et al., 2018; Smetana, 1981).

We assigned responses numerical values from -2.5 (indicating the most certainty that the peer whose parent had never been incarcerated possessed a certain belief) to +2.5 (indicating the most certainty that the peer whose parent was incarcerated possessed a certain belief). Because participants could not obtain a score of 0 on a single trial, this coding scheme allowed for the distance between scores on the same side of 0 (e.g., +2.5, indicating that the participant was “very sure” that the peer whose parent was incarcerated possessed a certain belief, and +1.5, indicating that the participant was “kind of sure” that the peer whose parent was incarcerated possessed a certain belief) to correspond to the distance between scores on opposite sides of 0 (e.g., -.5, indicating that the participant was “not very sure” that the peer whose parent had never been incarcerated possessed a certain belief, and +.5, indicating that the participant was “not very sure” that the peer whose parent was currently incarcerated possessed a certain belief; see Wolle et al., 2021 for an analogous coding scheme).

Block II investigated children's pro-social behaviors toward peers whose parents were, versus were not, incarcerated. Here, the experimenter introduced participants to a resource allocation task. First, the experimenter showed children pictures of one of two peers on a Power Point display. The experimenter described each peer as being born to a mother who either had never gone to jail or was currently in jail. Next, the experimenter said, “Now, here are some stickers. You can decide how many stickers you want to give the person I just told you about. You can give as many stickers as you want, but you cannot keep any for yourself.” Participants received five stickers. The experimenter then showed children how to distribute stickers between

two envelopes, one of which was blank and the other of which was illustrated with a picture of a trash bin. The experimenter told participants that the peer being discussed would receive stickers placed in the former envelope and that any stickers placed in the latter envelope would be discarded. The experimenter closed their eyes while the child distributed stickers. After children allocated stickers during this first trial, the experimenter placed both envelopes aside until the end of the session and introduced the next peer. We adapted this procedure from scholarship examining children's pro-social behavior (Dunlea et al., in press; Huppert et al., 2020).

The following items were counterbalanced across participants: (1) order of experimental items, (2) order of peers within each trial (e.g., sometimes children completed the trial with the peer with an incarcerated mother first), (3) placement of peers within each trial (e.g., the peer with an incarcerated mother was sometimes on the left side of the screen), and (4) pairing of each experimental item with a particular picture. See Supplementary Materials for relevant materials for each study, including example coding sheets and stimuli.

Results

Here and in Study 2, we used a Bonferroni correction to adjust analyses that included multiple comparisons. Below, we report the corrected alpha level alongside unadjusted p values. We averaged participants' responses to the four items concerning conventional beliefs ($\alpha=.73$) and, separately, the four items concerning moral beliefs ($\alpha=.81$). See Supplementary Materials for descriptive statistics for each measure in each of the studies. In addition to the main analyses presented in each study, we conducted a series of exploratory analyses to examine the extent to which belief attribution scores predicted the number of resources children shared with peers whose parents were and, separately, were not incarcerated. Overall, we did not find strong

evidence that participants' belief attribution scores predicted their resource allocation decisions (see Supplementary Materials for relevant analyses).

Belief attributions. We investigated participants' responses to the belief attribution items using two types of analyses (Fig. 5.1). First, we conducted a 2 (Participant Age: 5- to 6-year-old vs. 7- to 8-year-old) x 2 (Belief Type: moral vs. conventional) mixed ANOVA with repeated measures on the second factor. This analysis revealed a main effect of Participant Age, $F(1, 160)=10.40, p=.002, \eta_p^2=.06$. Seven- to 8-year-olds indicated more certainty than did 5- to 6-year-olds that individuals without, versus with, an incarcerated parent possessed moral and conventional beliefs. This analysis also revealed a main effect of Belief Type, $F(1, 160)=7.75, p=.006, \eta_p^2=.05$. Children reported more certainty that peers whose parents were not, versus were, incarcerated possessed moral—rather than conventional—beliefs. The Participant Age x Belief Type interaction did not reach significance ($p=.865$).

Second, we conducted a series of one-sample *t*-tests to compare mean responses in each group to the midpoint of the scale (0, the average value that would be expected if participants, on average, were completely uncertain about which individual held a particular belief). The purpose of these analyses was to garner a more fine-grained understanding of potential age-related differences in children's belief attributions. This analysis included four comparisons; therefore, *p* values needed to be .013 or lower to pass the Bonferroni-corrected significance threshold.

Participants in both age groups were relatively certain that individuals without, versus with, an incarcerated parent possessed moral beliefs (younger: $p<.001$, Cohen's $d=-.39$, 95% CI_{diff} : [-.90, -.28]; older: $p<.001$, Cohen's $d=-.91$, 95% CI_{diff} : [-1.60, -.94]). A different pattern emerged for attributions of conventional beliefs. Older participants were relatively certain that individuals without, versus with, an incarcerated parent possessed conventional beliefs ($p<.001$,

Cohen's $d=-.70$, 95% CI_{diff}: [-1.31, -.65]). However, younger participants were uncertain about whether individuals with incarcerated parents or individuals whose parents were not incarcerated were more likely to hold conventional beliefs ($p=.029$ [this effect falls to non-significance after applying a Bonferroni correction], Cohen's $d=-.23$, 95% CI_{diff}: [-.63, -.04]).

Resource allocation task. We analyzed participants' resource allocations using a 2 (Participant Age: 5- to 6-year-olds vs. 7- to 8-year-olds) x 2 (Peer Description: parent not incarcerated vs. parent incarcerated) mixed ANOVA with repeated measures on the second factor. This analysis revealed a main effect of Peer Description ($F(1, 157)=76.90, p<.001, \eta_p^2=.33$). Participants shared fewer stickers with the peer whose parent was incarcerated than with the peer whose parent was not incarcerated. Neither the main effect of Participant Age nor the Participant Age x Peer Description interaction reached significance ($ps\geq.847$; Fig. 5.2).

Discussion

Study 1 examined children's evaluations of—and behaviors toward—peers whose parents were, versus were not, incarcerated. To do so, we recruited a sample of elementary schoolers—a majority of whom had parents who were not incarcerated—between the ages of 5 and 8 years old. Several results emerged. First, children reported greater certainty that peers whose parents were not, versus were, incarcerated possessed moral beliefs. Second, although children in both age groups reported pessimism toward peers with incarcerated parents, such pessimism was more robust among 7- to 8-year-olds than 5- to 6-year-olds. The magnitude of effect size comparing moral belief attribution scores to 0 (indicating uncertainty whether peers whose parents were, versus were not, incarcerated possessed a certain belief) was larger among older children (Cohen's $|d|=.91$) than younger children (Cohen's $|d|=.39$). Thus, these results also dovetail with work suggesting that children's optimism toward others decreases with age (e.g.,

Boseovski et al., 2010). Third, children shared fewer stickers with the peer whose parent was incarcerated than with the peer whose parent was not incarcerated. Together, these findings suggests that children's negative evaluations of peers with incarcerated parents co-occur with negative behaviors toward such individuals.

Study 2

Study 2 extended Study 1 in several ways. One primary contribution of Study 2 was to investigate whether the main pattern of results from Study 1 hinged on children's inferences about parental incarceration or, more generally, parental absence. Many beliefs that children hold—including normative beliefs—stem from information directly provided by parents (e.g., Berkowitz & Grych, 1988; Harris, 2006). Therefore, when making inferences about others' beliefs, children may reflect on their own salient learning experiences and conclude that normative beliefs are acquired via social input. Such a pattern of results could, in part, explain why participants in Study 1 inferred that peers with incarcerated parents lack normative beliefs: namely, children could have reasoned that such individuals lack normative beliefs because do not have direct access to a parental figure from whom to learn socially relevant information. We aimed to distill to effects of parental incarceration, versus parental absence, by probing children's views about three peers: one whose parent was incarcerated, one whose parent was away on a business trip, and one whose parent was present. If children's judgments in Study 1 hinged on inferences about parental absence, children in Study 2 may report similar views of the peer whose parent is incarcerated and the peer whose parent is away on a business trip. Alternatively, if children's judgments hinged on inferences about parental incarceration, children in Study 2 may report different views of these two peers.

Another primary contribution of Study 2 was to investigate the extent to which the pattern of results from Study 1 would generalize to different types of beliefs. To do so, we probed children's inferences about others' *factual* beliefs in addition to the moral and conventional beliefs tested in Study 1. Probing children's views of others' factual beliefs was important for two main reasons. First, this approach allowed us to determine the extent to which older children in Study 1 were pessimistic that peers with incarcerated parents possessed normative beliefs versus the extent to which they viewed peers with incarcerated parents as possessing relatively few mental states overall. Evidence in favor of the latter possibility would support the idea that children dehumanize peers with incarcerated parents. Broadly, scholars have conceptualized dehumanization as involving the denial of qualities of human-like qualities, with many directly linking dehumanization with decreased overall mental state attributions (for a review, see Haslam & Loughnan, 2014). While the literature on dehumanization among adults is robust, a relatively small subset of studies has examined when—and *whom*—children dehumanize (for a notable exception, see McLoughlin & Over, 2017). Our work contributes to this nascent literature by examining the extent to which children attribute fewer human-like mental states to members of a specific social group (i.e., children with incarcerated parents). Second, this approach allowed us to compare our findings with previous scholarship investigating the extent to which children view moral beliefs as fact-like. Prior work suggests that children in preschool and elementary school view moral claims as objectively true or false, similar to factual claims, particularly when those moral claims concern issues that elicit widespread agreement (e.g., whether hitting someone for no reason is morally wrong; Heiphetz & Young, 2017; Wainryb et al., 2004). Comparing moral beliefs with factual beliefs in the current work allowed us to determine whether children also distinguish these two types of beliefs

when attributing mental states to others rather than deciding whether, for instance, only one person in a disagreement can be correct.

Study 2 also made two secondary contributions. First, this study determined the extent to which the pattern of results from Study 1 would conceptually replicate in a new sample of children. Second, Study 2 asked children to make absolute judgments of others' beliefs (e.g., whether peers with an incarcerated parent possessed moral beliefs). In Study 1, participants made relative judgments by selecting which of two peers held a particular belief. While other programs of research have used similar approaches for probing children's views of others (e.g., Liberman et al., 2018), one drawback of this approach in the context of the current work is that it could not offer direct insight regarding absolute inferences about others' beliefs. For instance, elementary schoolers may believe that peers with incarcerated parents do possess *some* moral beliefs, albeit less than their peers whose parents are not incarcerated. Study 2's method allowed for more nuance in capturing children's responses. We collected data for Study 2 between Spring 2020 and Spring 2021.

Method

Participants. We initially planned to follow the same recruitment procedure outlined in Study 1. However, due to the COVID-19 outbreak in Spring 2020, we tested participants remotely using an online videoconferencing platform (Zoom). We recruited participants via a departmental database, social media advertisement campaigns, and a website for families interested in signing up for research studies (<https://childrenhelpingscience.com>). Any English-speaking family living in the United States with eligible children could participate. To be consistent with Study 1, we aimed to recruit approximately 83 participants per age group.

Our final sample included 84 5- to 6-year-olds ($M_{age}=5.44$ years, $SD_{age}=.50$ years; 45% female, 51% male, remainder unspecified; 71% White or European-American, 2% Black or African-American, 7% Asian or Asian-American, 12% multiracial, 2% other/not listed, remainder unspecified; 10% Hispanic or Latine, 86% not Hispanic or Latine, remainder unspecified), and 85 7- to 8-year-olds ($M_{age}=7.51$ years, $SD_{age}=.53$ years; 40% female, 58% male, 1% other/not listed, remainder unspecified; 59% White or European-American, 5% Black or African-American, 8% Asian or Asian-American, 22% multiracial, 2% other/not listed, remainder unspecified; 6% Hispanic or Latine, 91% not Hispanic or Latine, remainder unspecified). We excluded data from one additional older child because she did not understand the study. Study 2's main pattern of results emerged even when we did not to exclude any participants. All participants received a \$5 Amazon gift card. Seven parents reported their child (six 5- to 6-year-olds and one 7- to 8-year-old) knew someone who has been incarcerated. This variable did not reliably predict participants' responses (see Supplementary Materials).

Procedure. Study 2 progressed in three parts. In Part I, the experimenter told children that they would learn about different people and then showed children a picture of three peers on a PowerPoint display. The experimenter pointed to each peer one at a time and described one as having a mother who was away from home because she was incarcerated, another as having a mother who was away from home because she was on a business trip, and the third as having a mother who lived with them at home. Importantly, the experimenter specified that the former two characters were separated from their parents for the same amount of time (one year). As mentioned in Study 2's introduction, including the business trip condition helped determine the extent to which the pattern of results from Study 1 depended on children's inferences about parental incarceration specifically or parental absence more broadly. We included the business

trip condition as a matched control condition because, like incarceration (Travis, 2005), work-related absences can be lengthy but are typically temporary (for a similar approach, see Dunlea & Heiphetz, 2021).

In Part II, the experimenter re-introduced participants to each peer, one at a time, and reminded participants about that peer at a broad level (e.g., “[He/She] lives far away from [his/her] mom because [his/her] mom is traveling on a business trip right now. [His/Her] mom has been away on the business trip for one year”). Participants then answered nine yes-or-no items probing their inferences about each peer’s beliefs. Three items probed children’s inferences about peers’ moral beliefs (e.g., “Does this person think that hitting another person is wrong?”), three items probed children’s inferences about peers’ conventional beliefs (e.g., “Does this person think talking in class without raising your hand is wrong?”), and three items probed children’s inferences about peers’ factual beliefs (e.g., “Does this person think that germs are very small?”). The experimenter followed up each yes-no item with a more fine-grained item (“Are you really sure, kind of sure, or not very sure about that?”). As in Study 1, participants dictated their responses to each item directly to the experimenter.

As in Study 1, we assigned numerical values from -2.5 (indicating most certainty that a given character did *not* possess a certain belief) to +2.5 (indicating most certainty that a given character *did* possess a certain belief). Participants answered all items about one character before moving on to items about the next character. The order of experimental items (e.g., items probing participants’ inferences about others’ beliefs) was counterbalanced across participants. We selected the moral and conventional beliefs in Study 2 from the pool of items used in Study 1 based on how representative they were of each belief category. To determine representativeness, we calculated a mean belief attribution score for each belief category based on the four items per

belief category in Study 1. We then selected the three items whose average scores were closest to the overall mean for inclusion in the present study. We adapted items probing children's inferences about factual beliefs from work examining children's views of such beliefs (Heiphetz et al., 2014).

In Part III, as in Part II, the experimenter re-introduced participants to each peer, one at a time. After re-introducing a given peer, the interviewer showed participants pictures of five stickers and subsequently said, "Now, here are some stickers. You can decide how many stickers you want to give to the person I just told you about. You can give as many stickers as you want, but you cannot keep any for yourself." The experimenter then showed children how to distribute the stickers between two envelopes, one of which was illustrated with a picture of a stick figure resembling the peer that the experimenter had just re-introduced and the other of which was illustrated with a picture of a trash can. The experimenter told participants that the peer being discussed would receive any stickers placed in the former envelope and that any stickers placed in the latter envelope would be discarded. Participants indicated the envelopes into which they wanted to place the stickers and observed (via video camera) the experimenter placing actual stickers in the corresponding envelopes. Participants finished making resource allocation decisions for a given peer before moving on to the next trial. The order in which participants made allocation decisions for each peer was counterbalanced across participants.

Results

In the section below, all non-integer degrees of freedom reflect a Greenhouse-Geisser adjustment to correct for a violation of the assumption of sphericity. See Supplementary Materials for detailed statistics, including the p value, 95% confidence interval on the difference between means, and effect size associated with each pairwise comparison.

Belief Attributions. As in Study 1, we investigated participants' responses to the belief attribution items using two types of analyses (Fig. 5.3). First, we analyzed participants' responses using a 2 (Participant Age: 5- to 6-year-olds vs. 7- to 8-year-olds) x 3 (Parent Description: present vs. business trip vs. incarcerated) x 3 (Belief Type: moral vs. conventional vs. factual) mixed ANOVA with repeated measures on the latter two factors. This analysis revealed main effects of Parent Description ($F(1.92, 330.50)=28.32, p<.001, \eta_p^2=.15$) and Belief Type ($F(2, 334)=46.06, p<.001, \eta_p^2=.22$). We also found a Participant Age x Parent Description interaction ($F(1.92, 321.06)=4.07, p=.019, \eta_p^2=.02$) and a Peer Description x Belief Type interaction ($F(3.70, 617.86)=7.24, p<.001, \eta_p^2=.04$). These effects were qualified by a Participant Age x Parent Description x Belief Type interaction ($F(3.70, 617.86)=3.06, p=.019, \eta_p^2=.02$). No other main effects or interactions reached significance ($ps \geq .232$).

To better understand the three-way interaction, we compared children's views of each belief type for a given peer with their views of that same belief type for each other peer. For example, we compared the extent to which children attributed moral beliefs to the peer whose parent was present with the extent to which they attributed moral beliefs to each other peer (i.e., the peer whose parent was on the business trip and, separately, the peer whose parent was incarcerated). We conducted these analyses separately for 5- to 6-year-olds and 7- to 8-year-olds. This analysis included 18 comparisons; therefore, p values needed to be .003 or lower to pass the Bonferroni-corrected significance threshold.

Younger children indicated more certainty that the peer whose parent was present, versus the peer whose parent was incarcerated, possessed moral beliefs ($p=.002$, Cohen's $d=.34$). No other comparisons among younger children reached significance ($ps \geq .016$; Cohen's $ds \leq .27$). A different pattern of results emerged among older children. Namely, older children indicated more

certainty that the peer whose parent was present, versus any other peer, possessed moral beliefs (parent on business trip: $p < .001$, Cohen's $d = .42$, 95% CI_{diff} : [.22, .69]; parent incarcerated: $p < .001$, Cohen's $d = .80$, 95% CI_{diff} : [.94, 1.63]). Older children also indicated more certainty that the peer whose parent was on a business trip, versus incarcerated, possessed moral beliefs ($p < .001$, Cohen's $d = .48$, 95% CI_{diff} : [.46, 1.20]). Finally, older children indicated more certainty that the peer whose parent was present, versus any other peer, possessed conventional beliefs (parent on business trip: $p < .001$, Cohen's $d = .44$, 95% CI_{diff} : [.27, .80]; parent incarcerated: $p < .001$, Cohen's $d = .59$, 95% CI_{diff} : [.61, 1.30]). No other comparisons reached significance ($ps \geq .018$; Cohen's $ds \leq .26$).

For consistency with the analyses presented in Study 1, we also conducted a series of one-sample t -tests to compare moral, conventional, and factual belief attribution scores in each parent description condition to 0. We conducted these analyses separately for 5- to 6-year-olds and 7- to 8-year-olds. This analysis included 18 comparisons; therefore, p values needed to be .003 or lower to pass the Bonferroni-corrected significance threshold. All belief attribution scores were significantly above the scale midpoint ($ps \leq .001$; Cohen's $ds \geq .37$), suggesting that children in both age groups attributed some degree of moral, conventional, and factual beliefs to peers in each parent description condition.

Resource allocation task. Next, we analyzed participants' resource allocation decisions using a 2 (Participant Age: 5- to 6-year-olds vs. 7- to 8-year-olds) x 3 (Parent Description: present vs. business trip vs. incarcerated) mixed ANOVA with repeated measures on the second factor (Fig. 5.4). This analysis revealed a main effect of Parent Description ($F(1.75, 292.30) = 18.21, p < .001, \eta_p^2 = .10$). To better understand this main effect, we compared the number of resources participants shared with a given peer with the number of resources participants

shared with each other peer. Doing so resulted in three comparisons; therefore, p values needed to be .017 or lower to pass the Bonferroni-corrected significance threshold. Children shared more resources with the peer whose parent was present than the peer whose parent was on a business trip ($p=.007$, Cohen's $d=.21$, 95% CI_{diff} : [.09, .55]) and with the peer whose parent was on a business trip than the peer whose parent was incarcerated ($p<.001$, Cohen's $d=.29$, 95% CI_{diff} : [.25, .79]). Neither the main effect of Participant Age nor the Participant Age x Parent Description interaction reached significance ($ps\geq.193$).

Discussion

Study 2 examined the extent to which children's judgments of and behaviors toward peers in Study 1 hinged on information about parental incarceration versus parental absence. We did so by recruiting a sample of elementary schoolers—a majority of whom had parents who were not incarcerated—between the ages of 5 and 8 years old. Several notable results emerged. First, differences emerged across conditions with regards to children's moral belief attribution scores. Older children's moral belief attribution scores were higher in the “parent present” than in the “parent on business trip” condition. One possible interpretation for this finding is that older children in Study 2 understood parental absence as a missed opportunity for moral education (e.g., parent-child conversations about morally relevant topics). Moreover, this finding suggests that parental absence drove some of the effects documented in Study 1. Additionally, older children's moral belief attribution scores were higher in the “parent on business trip” condition than in the “parent incarcerated” condition. This finding suggests that older children's inferences about parental incarceration may have contributed to the pattern of results found in Study 1. Although younger children differentiated between the “parent incarcerated” and “parent present” conditions, a difference between the aforementioned conditions and the “parent on business trip”

condition did not emerge. Because older children were more likely than younger children to starkly differentiate between characters whose parents were absent versus present when making inferences about moral beliefs, the perceived link between parental absence and a missed chance for moral education may strengthen with age.

Second, when reasoning about conventional beliefs, we did not find that older children differentiated between the “parent on business trip” and “parent incarcerated” conditions. However, older children *did* differentiate between the aforementioned conditions and the “parent present” condition. This pattern of results suggests that older children’s judgments regarding conventional beliefs in Study 1 may have stemmed from their inferences related to parental absence broadly as opposed to parental incarceration more specifically. Differently put, these results may suggest that older children understand parental absence in general as a cue about individuals’ conventional, rather than moral, beliefs. Although both younger and older children in Study 1 reported more certainty that peers whose parents were not, versus were, incarcerated possessed conventional beliefs, younger children’s conventional belief attribution scores did not vary across parent description conditions in Study 2. This difference across studies may stem from divergent methods of response elicitation. In Study 1, participants compared peers’ beliefs (i.e., whether a peer with an incarcerated parent *or* a peer whose parent was not incarcerated possessed a certain belief). This direct comparison may have increased younger children’s differentiation between the conventional beliefs of peers whose parents were, versus were not, incarcerated.

Third, among both younger and older children, we did not find that attributions of factual beliefs varied across parent description conditions. These findings indicate that children distinguish moral and factual beliefs when attributing these mental states to others despite the

similar responses children exhibit to these mental states when judging the extent to which they reflect objective truths about which only one person can be right (e.g., Heiphetz & Young, 2017; Wainryb et al., 2004). This pattern of results also suggests that neither parental absence nor parental incarceration impact children's inferences about others' factual beliefs. Because variation emerged across some parent description conditions for children's attributions of moral and conventional—but not factual—beliefs, Study 2 offers evidence against the possibility that Study 1's results emerged from a general tendency for children to dehumanize peers with incarcerated parents. Given the difficulty of interpreting null effects, it is possible that children do actually dehumanize peers with incarcerated parents but that the current methodology failed to capture this phenomenon. This possibility may be unlikely because the same method did capture differences in attribution regarding moral and conventional beliefs; however, future work can further investigate factual beliefs to determine whether this null effect emerges in different experimental paradigms.

Fourth, children in Study 2 shared the largest number of resources with peers whose parents were present, followed by peers whose parents were on a business trip, followed by peers whose parents were incarcerated. This pattern of results suggests that, regardless of age, children's resource allocation decisions hinge on information about parental absence and, separately, information about parental incarceration. These results also suggest that children's unequal resource allocation decisions in Study 1 were not entirely driven by parental absence.

General Discussion

Institutional actors in the United States often treat incarcerated and formerly incarcerated individuals with scorn and judgment (e.g., Forbes, 2016; Van Cleve, 2016), and this negativity spills over into judgments of their children (e.g., Krupat, 2007; Murray et al., 2012; Phillips &

Gates, 2010). However, the developmental foundations of negativity toward children with incarcerated parents remains unclear. We addressed this topic by probing younger (5- to 6-year-old) and older (7- to 8-year-old) children's inferences about the beliefs of peers whose mothers were, versus were not, incarcerated. To complement this focus on moral cognition, we also investigated children's behaviors toward peers with and without an incarcerated parent.

In Study 1, older children reported greater certainty than did younger children that peers whose parents were not, versus were, incarcerated possessed both moral and conventional beliefs. Additionally, children behaved more generously toward peers whose parents were not, versus were, incarcerated. Study 2 extended Study 1's results in several ways. Namely, Study 2 suggested that older, but not younger, children's inferences about parental incarceration uniquely contribute to their pessimism regarding the moral beliefs of peers whose parents are incarcerated. Study 2 also suggested that older children's pessimism regarding the conventional beliefs of peers whose parents are incarcerated largely hinged on parental absence broadly as opposed to parental incarceration specifically. Moreover, the results of Study 2 showed that the pattern of results from Study 1 did not extend to factual beliefs, which children readily attributed to their peers regardless of parental status. In other words, differential rates of attributing moral beliefs did not seem to reflect a broader tendency to dehumanize by failing to attribute any mental states at all to children with incarcerated parents.

The primary contribution of the current work includes clarifying how age-related changes in social cognition may shape children's responses to peers with incarcerated parents. A priori, two competing possibilities arose from the extant literature. On the one hand, pessimism regarding the morality of children whose parents are incarcerated could strengthen with age. Some past work suggests that optimism—including optimism about out-group members' morally

relevant characteristics (Lieberman et al., 2018)—decreases across development. Thus, age-related changes in optimism and intergroup reasoning may jointly lead older, versus younger, participants to be especially pessimistic regarding the extent to which peers with incarcerated parents possess moral beliefs. On the other hand, both younger and older children may report similar levels of pessimism that peers whose parents are, versus are not, incarcerated possess moral beliefs. Because even young children make inferences about individuals based on those individuals' social relationships (e.g., Chalik & Rhodes, 2014) and draw negative conclusions about punished individuals (Dunlea & Heiphetz, 2020), both younger and older participants in the current work may report similar levels of pessimism regarding the extent to which peers with incarcerated parents possess moral beliefs.

The current work supports the former possibility. In Study 1, pessimism toward peers whose parents were, versus were not, incarcerated was more robust among 7- to 8-year-olds than 5- to 6-year-olds: the effect size comparing moral belief attribution scores to 0 (indicating uncertainty about whether peers whose parents were, versus were not, incarcerated possessed a certain belief) was larger among older children (Cohen's $|d|= .91$) than younger children (Cohen's $|d|= .39$). Further, the results of Study 2 suggested that older children's pessimism toward peers with incarcerated parents uniquely stemmed from their inferences about parental incarceration rather than parental absence more generally. Here, older children reported the most optimism regarding the moral beliefs of peers in the "parent present" condition and least optimism in the "parent incarcerated" condition. Belief attribution scores in the "parent on business trip" condition fell between these extremes. Given that older children differentiated between the "parent on business trip" and "parent incarcerated" conditions, older children may understand information about parental incarceration as a unique sign that a peer lacks moral beliefs.

However, younger children did not make this distinction. This result suggests that younger children's pessimism regarding the moral beliefs held by peers with incarcerated parents stems from a combination of inferences about parental absence and inferences specifically about parental incarceration.

Limitations and Directions for Future Research

We examined elementary schoolers' socio-moral judgments and behaviors toward peers with incarcerated parents. In doing so, the current work leveraged experimental methods to make several unique theoretical contributions and highlighted an understudied topic within psychology (parental incarceration). Yet, as in all programs of research, the current work is limited in some ways and several avenues remain open for future research.

One limitation of the current work is that our research participants, as well as the characters we asked about (i.e., children with incarcerated parents), represent only a sliver of human diversity. Future work can address this limitation in at least two important ways. First, future work can widen the scope of individuals who participate in research by recruiting children who have experience with parental incarceration. Although some caregivers in the current work reported that their children had an incarcerated parent (see Supplementary Materials for relevant analyses), future work can aim to recruit both children with incarcerated and non-incarcerated parents to better understand the role of parental incarceration in shaping children's responses to peers with incarcerated parents. Future work can also include children whose parents were incarcerated in the past but are not presently incarcerated to determine how past, versus ongoing, parental incarceration might shape social and moral cognition.

Parents, including those who are incarcerated, often play a powerful role in shaping their children's positive moral development (e.g., Berkowitz & Grych, 1988). For instance, both

incarcerated and non-incarcerated parents often teach their children about widely-shared moral beliefs (e.g., hitting another person for no reason is wrong) and encourage their children to act in prosocial ways (Kaiper-Marquez et al., 2021). Thus, when making judgments about other peers whose parents are incarcerated, children may reflect on their own experiences of internalizing morally relevant messages from their incarcerated parents and, in turn, conclude that other peers whose parents are, or have been, incarcerated possess moral beliefs. Moreover, children with incarcerated parents may view peers whose parents are also incarcerated as members of their social ingroup. Given that people often behave generously toward ingroup members (e.g., Heiphetz & Young, 2019), children with incarcerated parents, compared to children whose parents are not incarcerated, may be especially likely to act prosocially toward peers whose parents are also incarcerated. Future work can test these possibilities and probe the extent to which children who are currently experiencing parental incarceration view peers who have ever experienced parental incarceration, even if that incarceration happened in the past, as in-group members.

Second, future work can probe children's responses to a wider array of individuals with stigmatized identities. Of course, focusing on children's perceptions of peers with incarcerated parents is important in its own right: doing so provides insight into the experiences faced by individuals belonging to a group that is often excluded from the scientific record. However, our focus on a single stigmatized group makes it difficult to draw conclusions about how the negativity associated with parental incarceration compares to the negativity associated with membership in other stigmatized identity groups. Future work can address this topic by investigating the extent to which children's responses toward peers with incarcerated parents generalize to members of other groups, such as those whose families are poor (e.g., del Río

& Strasser, 2011; Shutts et al., 2016). Preliminary evidence suggests that, with age, elementary schoolers begin to attribute some positive characteristics, such as warmth, to poor individuals (Yang & Dunham, in press). A similar effect could emerge for other positive characteristics, such as moral beliefs. Such a finding would suggest that parental incarceration is a stronger cue to immorality than familial poverty. Future work can examine this possibility.

In addition to probing the extent to which the pattern of belief attribution results generalizes to members of different stigmatized social groups, future work can examine the extent to which the results of the behavioral task generalize across types of resources. For example, future studies can examine how children allocate items that are essential for survival (e.g., an adequate amount of healthy food) versus items that are not (e.g., stickers). Elementary schoolers are more likely to share resources equally if they are necessary for the recipients' health and wellbeing than if they are not (Rizzo et al., 2016). A similar pattern may emerge in the context of the present work: children may share a similar number of necessary resources with peers whose parents are and are not incarcerated while sharing different amounts of resources across characters when those resources are not linked with health and wellbeing. This pattern would dovetail with prior literature suggesting that children readily consider item value when making resource allocation decisions (e.g., Rizzo et al., 2016; Shaw & Olson, 2013).

Alternatively, children may share relatively few resources of all types with peers whose parents are incarcerated. Such a finding could provide evidence that children more readily attend to the needs of peers without, versus with, incarcerated parents. Given that ignoring others' needs is linked with dehumanization (e.g., Haslam & Loughnan, 2014), this pattern of results could also offer some indirect evidence that children may dehumanize peers with incarcerated parents in

some ways, despite their propensity to attribute at least some mental states to these children (as shown in Study 2). Future research can examine this possibility.

Finally, future research can clarify the mechanism underlying children’s moral belief attributions. One candidate mechanism is *psychological essentialism*—the notion that people’s characteristics stem from internal, immutable, biologically-based “essences” (Gelman, 2003; Medin & Ortony, 1989). Children readily apply an essentialist framework when reasoning about a wide range of human characteristics, including morally relevant characteristics (Heiphetz, 2020). Moreover, elementary schoolers also report that incarcerated people possess negative moral characteristics (Dunlea & Heiphetz, 2020). Because (a) children often view morality as rooted in biology and (b) incarcerated people as possessing negative moral characteristics, elementary schoolers in the current work could have reasoned that children with incarcerated parents inherit immoral characteristics from their parents. Although this possibility seemed compelling *a priori*, preliminary evidence suggests that perceptions of heritability may not underlie children’s reasoning about the moral characteristics of peers with incarcerated parents (see Method Section in Study 1). An alternative candidate mechanism focuses on social learning. In Study 2, older children’s moral belief attribution scores were higher in the “parent present” than in the “parent on business trip” condition. One interpretation of this finding is that 7- to 8-year-olds may believe that others acquire morally relevant beliefs via direct social interactions. For instance, children may view parents as a source of moral education (Kaiper-Marquez et al., 2021) and conclude that peers who do not live with their parents, and therefore lack ready access to this form of moral education, are less moral than children who are growing up with their parents. Future work can test this possibility.

Conclusion

Two studies probed elementary schoolers' inferences about and behaviors toward peers whose parents were, versus were not, incarcerated. Across studies, younger and older children reported more certainty that peers whose parents were not, versus were, incarcerated possessed moral beliefs. While older children's inferences may have stemmed from judgments regarding parental incarceration specifically, younger children's responses may have been more sensitive to parental absence more broadly. Also across studies, older children reported more certainty that peers whose parents were not, versus were, incarcerated possessed conventional beliefs—a difference that appeared to stem from older children's inferences about parental absence. To complement this focus on moral cognition, the present work also measured children's behaviors toward peers. Regardless of age, children consistently shared fewer resources with peers whose parents were, versus were not, incarcerated. Together, the results of the current work help clarify how early systems of socio-moral judgment may contribute to, and reinforce, negativity toward children with incarcerated parents.

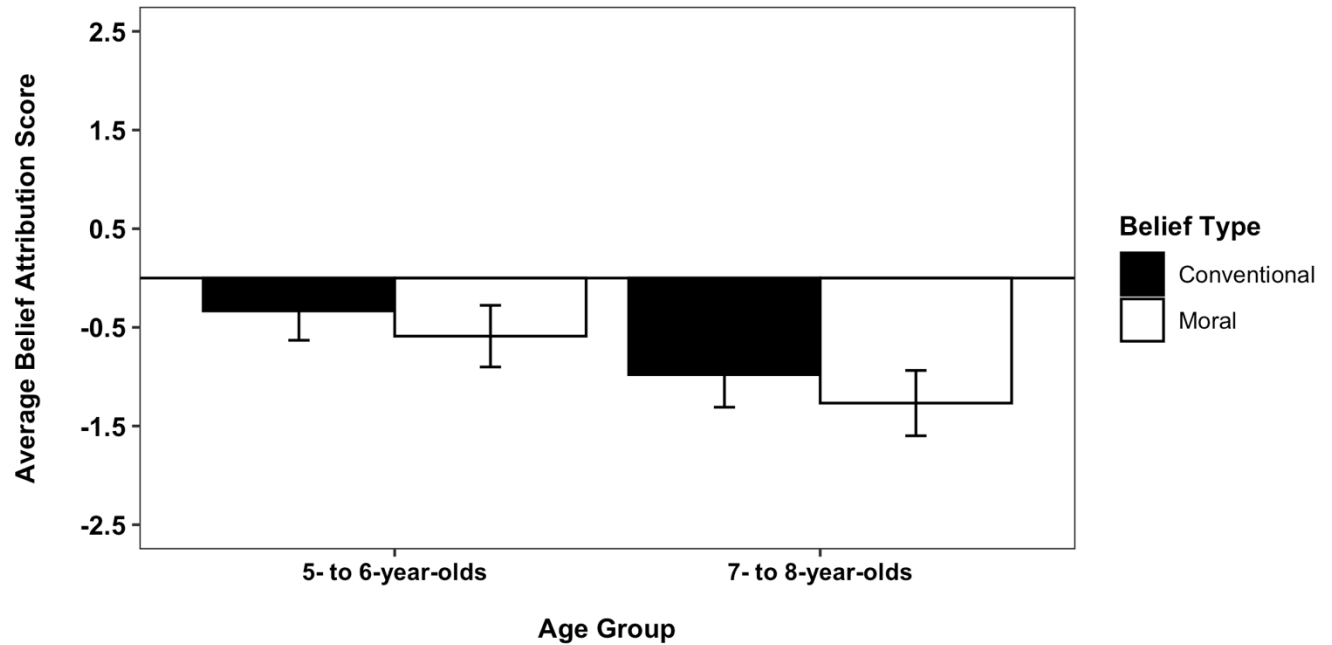


Fig. 5.1. Average certainty that peers with, versus without, incarcerated parents held moral and conventional beliefs. More negative scores reflect greater certainty that individuals whose parent was not incarcerated possessed a specific belief; more positive scores reflect greater certainty that individuals whose parent was incarcerated possessed a specific belief. Zero indicates uncertainty regarding which individual possessed a specific belief. Error bars represent 95% confidence intervals.

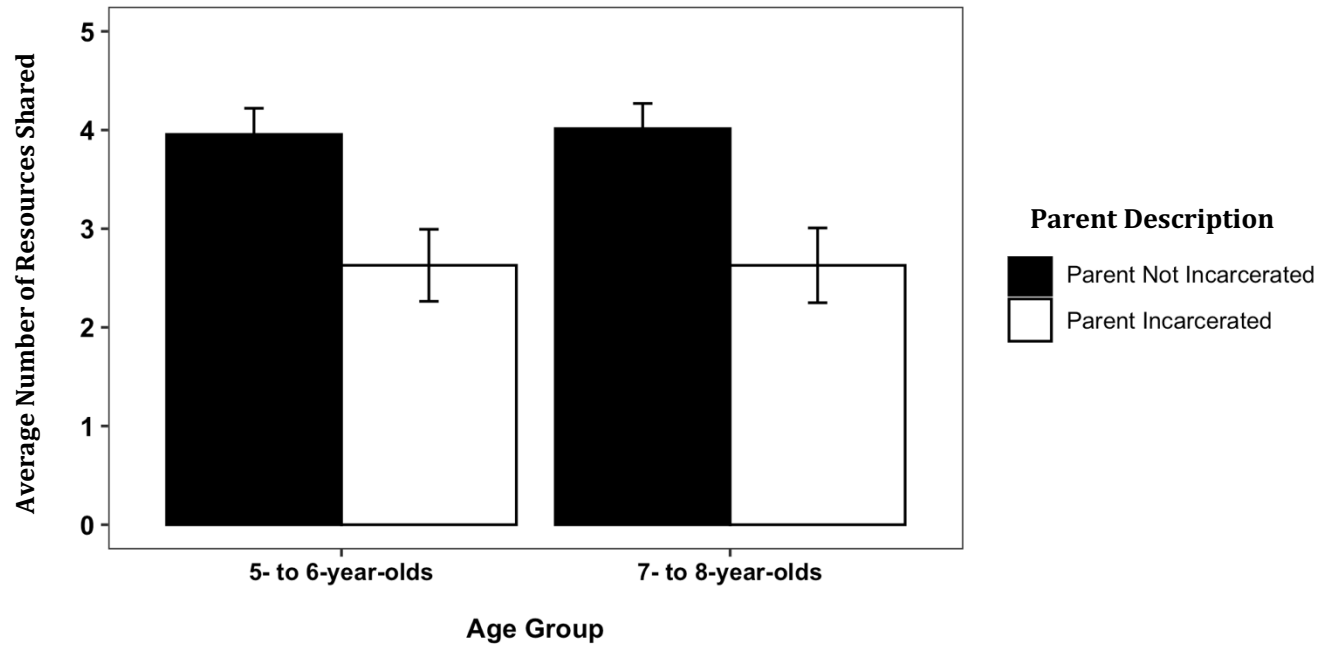


Fig. 5.2. Average number of resources shared with peers with, versus without, incarcerated parents. Error bars represent 95% confidence intervals.

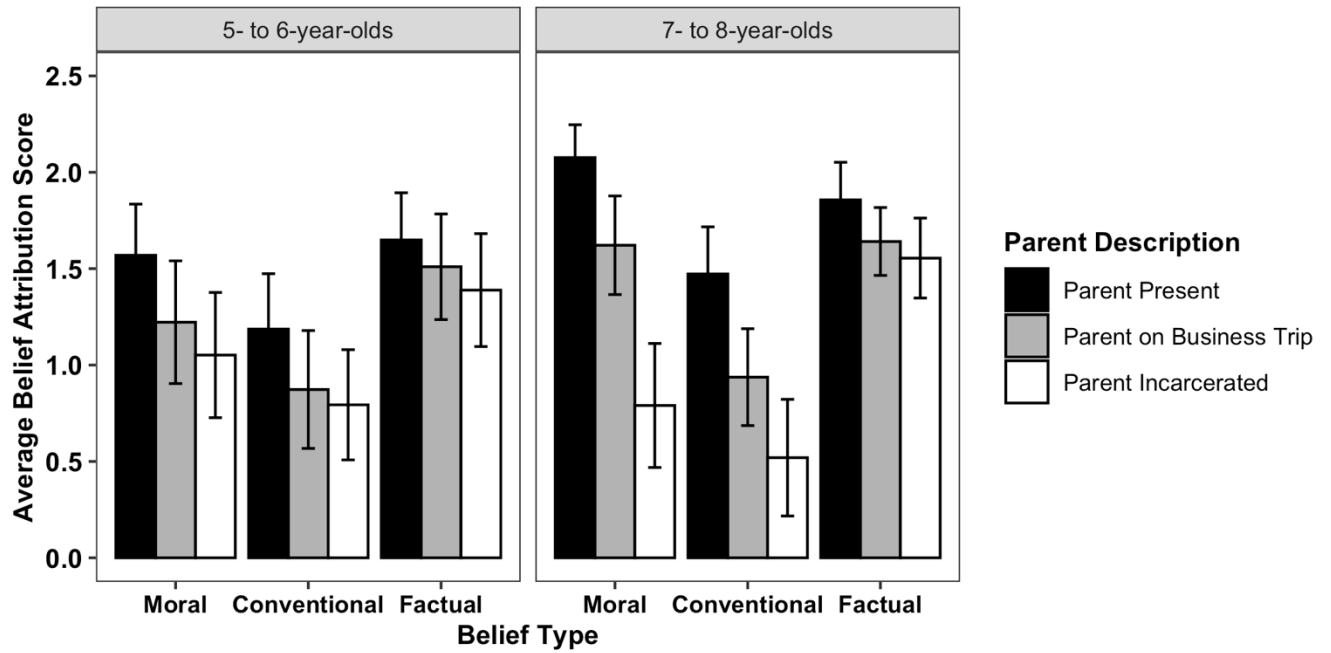


Fig. 5.3. Average certainty that different characters held moral, conventional, and factual beliefs. More positive numbers reflect greater certainty that characters possess a specific type of belief. Error bars represent 95% confidence intervals.

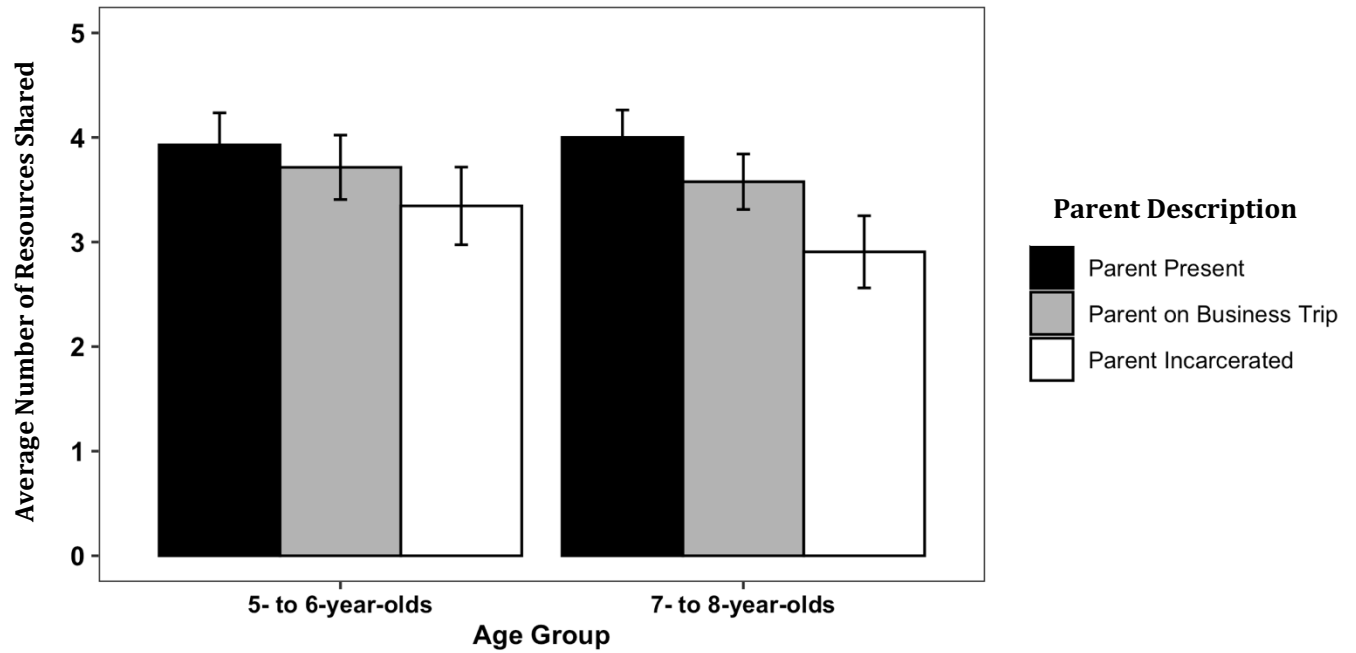


Fig. 5.4. Average number of resources shared with different characters. Error bars represent 95% confidence intervals.

General Discussion

Some theorists, typically those working at the nexus of law and philosophy, conceptualize punishment as being expressive—as both a behavior and a tool for communication (e.g., Feinberg, 1965; Kahan, 1996). Though past work has argued that punishment is communicative, few programs of research have empirically tested how laypeople interpret punishment’s messages. The work presented in this dissertation examined this topic by asking how laypeople interpret punishment’s messages regarding who punished people were in the past, what types of responses they should elicit in the present, and what types of people they and their children will be in the future.

What does punishment signal about the *past*?

Chapter 2 examined children’s and adults’ inferences about what punishment signals about who an individual was *before* they were punished. In an initial study, 6-to 8-year-olds and adults provided qualitative data regarding why people might receive one especially severe form of legal punishment (incarceration). Participants also learned about an incarcerated individual and rated their agreement with different statements regarding why the individual received punishment. In doing so, the current work probed the types of inferences people make about another person’s past after learning that that person has received punishment. Participants in both age groups readily reported that people receive punishment for behavioral reasons (e.g., because they broke the law). However, children were more likely to report that people receive punishment for their negative internal characteristics (e.g., because they were a bad person). Moreover, neither children nor adults indicated that societal factors (e.g., having grown up in poverty) play a role in why people receive punishment.

A follow-up study examined the extent to which another factor—namely, personal relationships with incarcerated people—shapes people’s inferences about individuals who have been implicated in the criminal legal system. Here, both children of incarcerated parents and children whose parents were not incarcerated provided qualitative data regarding why they thought people come in contact with the legal system. Children of non-incarcerated parents readily inferred that criminal legal contact stems from internal factors (e.g., immoral character, desires). Surprisingly, a similar pattern of results emerged among children of incarcerated parents.

Taken together, these findings make two primary contributions to the scientific understanding of how people interpret punishment’s messages. First, the results of Chapter 2 suggest that age may play strongly shape how people interpret punishment’s messages. For instance, children were more likely than adults to report that people are incarcerated for their internal characteristics. This finding suggests that children are especially likely to understand punishment as communicating information about the negative internal characteristics a person possessed prior to their incarceration. Second, the results of Chapter 2 suggest that people’s own personal relationships with incarcerated individuals may not strongly shape how they understand punishment’s messages. In the current work, children, regardless of their personal relationships with incarcerated people, readily indicated that people come in contact with punitive systems because of their negative internal characteristics. Thus, the results from Chapter 2 suggest that children use information about individuals’ contact with the criminal legal system as a signal about such individuals’ past negative internal moral characteristics.

What are the *current* consequences of punishment’s past-oriented messages?

Chapter 3 built on the findings in Chapter 2 by investigating the downstream social consequences of how people interpret punishment's messages. Here, 6- to 8-year-olds and adults learned about people who were incarcerated because of an internal characteristic (e.g., immoral character), behavior (e.g., breaking the law), or societal factor (e.g., poverty). They then indicated their attitudes toward each person. Both children and adults reported the most positivity toward people who were incarcerated for societal reasons and the least positivity toward people who were incarcerated for their internal moral character; attitudes linked with behavioral information fell between these extremes. These results suggest that, in general, messages linking punishment with internal moral characteristics are associated with a great deal of negativity.

These findings extended scholarship on the expressive theory of punishment by examining the social ramifications of how people might understand punishment's messages. Some legal theorists have argued that punishment's messages may shape the lived realities of those who have come in contact with the criminal legal system (e.g., Kleinfeld, 2016; Yankah, 2004). However, relatively less research has empirically examined this claim. Chapter 3 addressed this topic, revealing that the messages linking punishment with individual-level factors (immoral character, bad behavior) have especially deleterious consequences. In conjunction with the findings from Chapter 2, the results of Chapter 3 suggest that how people understand punishment's messages (i.e., communicating negative moral information about punished individuals) may contribute to the negativity experienced by those who have been implicated in the criminal legal system (for evidence of such negativity, see Alexander, 2012, Forbes, 2016; Van Cleve, 2016).

What does punishment signal about the *future*?

Chapter 2 focused on how people interpret punishment's past-oriented messages, and Chapter 3 documented the current consequences of these messages. Chapter 4 built on Chapters 2 and 3 by examining people's inferences about what punishment might signal about an individual's future. Chapter 4 addressed this topic by probing children's and adults' views about what a punished individual might be like after that individual has finished receiving punishment. Here, participants learned about "nice" and "mean" individuals who were sentenced to prison as punishment for breaking the law. Participants then indicated the extent to which such individuals' moral character would change as a function of punishment. Children indicated that "mean" people become "nicer" as a function of punishment; however, this pattern did not emerge among adults. Moreover, children indicated that "nice" people's characteristics are relatively stable across time, whereas adults indicated that "nice" people become "meaner" as a function of punishment.

Chapter 5 took a complementary approach to investigating laypeople's understanding of punishment's future-oriented signals. Namely, Chapter 5 addressed this topic by examining elementary schoolers' socio-moral judgments about, and behaviors toward, peers whose parents had received legal punishment (incarceration). Differently put, Chapter 5 addressed this question by asking whether children understand punishment as conveying morally relevant information about future generations of individuals related to punished individuals. Here, children were less certain that peers whose parents were, versus were not, incarcerated possess moral beliefs. Importantly, older children's inferences about parental incarceration (as opposed to parental absence) uniquely contributed their pessimism regarding peers of incarcerated parents' moral beliefs. Moreover, children behaved less generously toward peers whose parents were, versus were not, incarcerated.

Taken together, Chapters 4-5 make two main contributions. First, these chapters advance expressive theories of punishment. Of the extant studies probing how laypeople understand punishment's messages, most have focused on what punishment might communicate about individuals directly implicated in punishment-related scenarios (e.g., Bilz, 2016; Bregant et al. 2016; Jordan et al., 2020). Following this tradition, Chapter 4 examined the extent to which children and adults used information about punishment to make morally-valenced inferences about individuals who were directly implicated in punishment-related scenarios (i.e., what an incarcerated person will be like in the future). Critically, Chapter 5 extended scholarship in this area by examining the extent to which laypeople also understand punishment as communicating information about individuals who are not directly involved in punishment-related scenarios (i.e., children with an incarcerated parent). In Chapter 5, children shared fewer resources with peers whose parents were, versus were not, incarcerated. Further, 7- to 8-year-olds reported less certainty that peers whose parents were, versus were not, incarcerated possessed moral beliefs. These findings may suggest that (a) beginning early in the elementary school years, children come to understand punishment as a signal of who deserves generosity and that (b) later in elementary school, children also begin to understand punishment as a signal of *intergenerational* immorality. Thus, these findings advance legal and psychological scholarship by showing that people interpret punishment as signaling something meaningful about individuals who are not directly implicated in punishment-related scenarios.

Second, Chapters 4-5 demonstrate how development shapes people's understanding of punishment's future-oriented messages in nuanced ways. In some cases, participant age strongly predicts people's reasoning about punishment's messages. For instance, in Chapter 4, adults were more pessimistic regarding the extent to which punished individuals improve following

punishment than were elementary schoolers. One interpretation of these results is that children, but not adults, view punishment as a signal of moral redemption. Moreover, in Chapter 5, children became increasingly pessimistic about the moral beliefs of peers with incarcerated parents across the elementary school years. One interpretation of these findings is that, with age, children increasingly understand punishment as a signal of intergenerational immorality. In other cases, however, development weakly predicts people's reasoning about punishment's future-oriented messages. Namely, in Chapter 5, children—regardless of age—consistently behaved less generously toward peers whose parents were, versus were not, incarcerated. One interpretation of these findings is that, regardless of age, children understand punishment as conveying information about who is deserving of generosity. Taken together, these results suggest that some aspects of laypeople's reasoning about punishment's future-oriented messages remains stable over development, whereas others change with age. These findings advance scholarship on the communicative function of punishment by hinting that some punishment-related concepts may guide people's reasoning and behavior across development, whereas other punishment-related concepts are more amenable to being shaped by cognitive development and social experience.

Conclusion

Uniting scholarship across sub-areas of psychology (social cognition, development, moral psychology) and with related fields (e.g., philosophy, law), this dissertation examined how children and adults reason about punishment's messages. The current work suggests that, beginning even early in life, humans represent punishment as both a behavior and a mechanism for social communication. In other words, central to even humans' early punishment concepts is the notion that punishment is *expressive*. Moreover, this work revealed that people's

understanding of punishment's messages is multi-faceted. Laypeople understand punishment as expressing information about who others were in the past (Chapter 2), as a guide as to how they should respond to punished individuals in the present (Chapter 3), as well as who they will be in the future (Chapters 4-5). Laypeople also understand punishment as expressing morally relevant information about a range of individuals, including those directly implicated in punishment-related scenarios (Chapters 1-4) and their children (Chapter 5). Taken together, these chapters indicate that, for better or for worse, punishment's messages powerfully craft the realities in which people must live.

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Appendix A: Supplementary Materials for Chapter 2

Study 1: Correlations Between Participants' Responses and Demographic Factors

In addition to the analyses reported in the main text, we investigated whether (1) self-reported political orientation, (2) the number of incarcerated people participants know, and (3) age in years predicted participants' responses.

Relation Between Participant Responses and Self-Reported Political Orientation

We correlated adults' responses to the self-reported political orientation item on our demographic questionnaire (1=*Very liberal* to 7=*Very conservative*) with responses in each of the coding categories developed for the open-ended question about what prison is (the presence or absence of responses mentioning internal, behavioral, and societal factors) and, separately, the extent to which participants agreed with each of the four explanations provided for the target's incarceration. This approach resulted in seven analyses. Therefore, p values needed to be .007 or lower to reach significance. Two correlations passed the traditional .05 significance threshold; however, these correlations dropped to non-significance after controlling for multiple comparisons. No other comparisons reached significance ($|r|s \leq .16$, $ps \geq .034$). Thus, we did not find strong evidence that self-reported political orientation predicted adults' responses.

Relation Between Participant Responses and Number of Incarcerated People

Known

We correlated the number of incarcerated people adults reported knowing with responses in each of the coding categories for the open-ended question. We also correlated the number of incarcerated people adults reported knowing with the extent to which participants agreed with each of the four explanations provided for the target's incarceration. This approach resulted in seven analyses. Therefore, p values needed to be .007 or lower to reach significance. No

comparisons reached significance after applying this correction ($|r|s \leq .14$, $ps \geq .065$). Thus, we did not find strong evidence that the number of incarcerated people adults knew predicted their responses to our dependent measures.

Relation Between Participant Responses and Age

Next, we correlated age with responses in each of the coding categories for the open-ended question and, separately, the extent to which participants agreed with each of the four explanations provided for the target's incarceration. This approach resulted in seven analyses among children and, separately, among adults, for a total of 14 correlations. Therefore, p values needed to be .004 or lower to reach significance. The older children were, the *less* likely they were to agree that the target was incarcerated because he had a younger brother ($r = -.31$, $p = .002$). No other correlations reached significance ($|r|s \leq .21$, $ps \geq .006$). One additional correlation passed the traditional .05 significance threshold, however, this correlation dropped to non-significance after controlling for multiple comparisons. Thus, we did not find strong evidence that development within each age group was associated with participants' responses.

Study 1: Percent of Participant Responses Referencing Each Category for “What is Jail?” Question

Children:

Internal: 38%

Behavioral: 46%

Societal: 0%

Adults:

Internal: 3%

Behavioral: 67%

Societal: 1%

Study 1: Descriptive Statistics for Closed-Ended Agreement Questions

Table S2.1

Descriptive Statistics for Closed-Ended Agreement Questions Among Children, Study 1

(1=Don't agree at all; 5=Agree completely)

	Mean	Standard Deviation	N
Internal	4.05	1.24	94
Behavioral	4.46	.89	94
Societal	2.02	1.25	94
Irrelevant	1.51	1.09	94

Table S2.2

Descriptive Statistics for Closed-Ended Agreement Questions Among Adults, Study 1

(1=Don't agree at all; 5=Agree completely)

	Mean	Standard Deviation	N
Internal	2.28	1.04	168
Behavioral	3.85	1.09	168
Societal	1.98	1.07	168
Irrelevant	1.13	.43	168

Study 1: Inter-Item Correlations

Table S2.3

Inter-item Correlations Among Children, Study 1

	1. Internal	2. Behavioral	3. Societal	4. Irrelevant
1.		.31**	.13	.09
2.	.31**		-.06	-.03
3.	.13	-.06		.25*
4.	.09	-.03	.25*	

Note: * $p \leq .05$, ** $p \leq .01$, *** $p \leq .001$

Table S2.4

Inter-item Correlations Among Adults, Study 1

	1. Internal	2. Behavioral	3. Societal	4. Irrelevant
1.		.44*	.11	.03
2.	.44*		-.09	-.13
3.	.11	-.09		.22**
4.	.03	-.13	.22**	

Note: * $p \leq .05$, ** $p \leq .01$, *** $p \leq .001$

Study 1: Cohen's d s Associated with Each Pairwise Comparison (Comparing Each Age Group With Each Other Age Group Within Every Explanation Type)

Internal:

Children vs. adults: $d=1.59$

Behavioral:

Children vs. adults: $d=.60$

Societal:

Children vs. adults: $d=.04$

Irrelevant:

Children vs. adults: $d=.52$

Study 1: Cohen's d s Associated with Each Pairwise Comparisons (Comparing Pairs of Explanations Within Each Age Group)

Children:

Internal vs. behavioral: $d=.32$

Internal vs. societal: $d=1.24$

Internal vs. irrelevant: $d=1.62$

Behavioral vs. societal: $d=1.55$

Behavioral vs. irrelevant: $d=2.07$

Societal vs. irrelevant: $d=.35$

Adults:

Internal vs. behavioral: $d=1.11$

Internal vs. societal: $d=.22$

Internal vs. irrelevant: $d=1.04$

Behavioral vs. societal: $d=1.17$

Behavioral vs. irrelevant: $d=2.22$

Societal vs. irrelevant: $d=.80$

Study 2: Correlations Between Participants' Responses and Age

In Study 2, we correlated age with responses in each of the seven coding categories for why people break the law (internal overall, internal-stable, internal-potentially temporary, behavioral overall, behavioral-self, behavioral-others, societal). We also correlated age with the extent to which participants viewed each of four characters (person who broke the law, person who usually does good things, person who usually does bad things, person who usually does shy things) in essentialist terms. This approach resulted in 11 analyses among children of incarcerated parents and, separately, among children whose parents were not incarcerated, for a total of 22 correlations. Therefore, p values needed to be .002 or lower to pass the Bonferroni-corrected significance threshold. No comparisons reached significance ($|r| \leq .49$, $p \geq .018$), and only four comparisons passed the traditional .05 threshold. Thus, we did not find strong evidence that participant age was associated with participants' responses.

Study 2: Percent of Participant Responses Referencing Each Category for “Why do People Break the Law?” Question

Children whose parents were not incarcerated:

Overall internal: 67%

Internal-stable: 12%

Internal-temporary: 58%

Overall behavioral: 53%

Behavioral-self: 29%

Behavioral-others: 25%

Societal: 7%

Children of incarcerated parents:

Overall internal: 74%

Internal-stable: 13%

Internal-temporary: 70%

Overall behavioral: 43%

Behavioral-self: 35%

Behavioral-others: 22%

Societal: 0%

Study 2: Descriptive Statistics for Closed-Ended Essentialism Questions

Table S2.5

Descriptive Statistics for Closed-Ended Essentialism Questions Among Children Whose Parents Were Not Incarcerated, Study 2 (1=Lowest essentialism; 3=Highest essentialism)

	Mean	Standard Deviation	N
Breaking law	1.73	.33	58
Good behaviors	2.06	.36	58
Bad behaviors	1.73	.35	58
Shy behaviors	1.88	.33	58

Table S2.6

Descriptive Statistics for Closed-Ended Essentialism Questions Among Children of Incarcerated Parents, Study 2 (1=Lowest essentialism; 3=Highest essentialism)

	Mean	Standard Deviation	N
Breaking law	1.60	.36	23
Good behaviors	2.11	.43	23
Bad behaviors	1.63	.40	23
Shy behaviors	1.84	.34	23

Study 2: Inter-Item Correlations

Table S2.7

Inter-item Correlations Among Children Whose Parents Were Not Incarcerated, Study 2

	1. Breaking law	2. Good behaviors	3. Bad behaviors	4. Shy behaviors
1.		.41**	.54**	.65**
2.	.41**		.48**	.48**
3.	.54**	.48**		.33*
4.	.65**	.48**	.33*	

Note: * $p \leq .05$, ** $p \leq .01$, *** $p \leq .001$

Table S2.8

Inter-item Correlations Among Children of Incarcerated Parents, Study 2

	1. Breaking law	2. Good behaviors	3. Bad behaviors	4. Shy behaviors
1.		.28	.58**	.15
2.	.28		.05	.52*
3.	.58*	.05		.01
4.	.15	.52*	.01	

Note: * $p \leq .05$, ** $p \leq .01$, *** $p \leq .001$

Study 2: Each Chi-Square Test (Comparing Responses from Children of Incarcerated Parents with Responses from Children Whose Parents Were Not Incarcerated)

Overall internal: $X^2(1, N=77)=.40, p=.530$

Internal-stable: $X^2(1, N=74)=.02, p=.876$

Internal-temporary: $X^2(1, N=78)=.89, p=.346$

Overall behavioral: $X^2(1, N=78)=.56, p=.456$

Behavioral-self: $X^2(1, N=78)=.25, p=.619$

Behavioral-others: $X^2(1, N=78)=.12, p=.727$

Societal: $X^2(1, N=79)=1.73, p=.188$

Study 2: Each McNemar's Test (Comparing Responses from Children of Incarcerated Parents and, Separately, Children Whose Parents Were Not Incarcerated)

Children whose parents were not incarcerated:

Overall internal vs. overall behavioral: McNemar's test, $N=54, p=.296$

Overall behavioral vs. societal: McNemar's test, $N=55, p<.001$

Overall internal vs. societal: McNemar's test, $N=54, p<.001$

Internal-stable vs. internal-temporary: McNemar's test, $N=51, p=.001$

Behavioral-self vs. behavioral-temporary: McNemar's test, $N=55, p=.850$

Children of incarcerated parents:

Overall internal vs. overall behavioral: McNemar's test, $N=23, p=.065$

Overall behavioral vs. societal: McNemar's test, $N=23, p=.002$

Overall internal vs. societal: McNemar's test, $N=23, p<.001$

Internal-stable vs. internal-temporary: McNemar's test, $N=23$, $p=.001$

Behavioral-self vs. behavioral-temporary: McNemar's test, $N=23$, $p=.453$

Study 2: Cohen's d s Associated with Each Pairwise Comparisons (Comparing Pairs of Behaviors Collapsed Across Both Groups of Children)

Breaking law vs. bad behaviors: $d=.01$

Breaking law vs. good behaviors: $d=.90$

Breaking law vs. shy behaviors: $d=.11$

Good behaviors vs. bad behaviors: $d=.82$

Good behaviors vs. shy behaviors: $d=.56$

Bad behaviors vs. shy behaviors: $d=.38$

Appendix B: Supplementary Materials for Chapter 3

Study 1: Omnibus ANOVA And Pairwise Comparisons Including Adults

As reported in the main text, we recruited a sample of adults in Study 1 in addition to the children whose data we present in the main analyses. Thus, in addition to the analyses reported in the main text, we also analyzed participants' responses using a 2 (Participant Age: child vs. adult) x 2 (Person Race: White vs. Black) x 3 (Information Type: internal vs. behavioral vs. societal) mixed ANOVA with repeated measures on the third factor. This analysis revealed main effects of Participant Age, $F(1, 205)=4.17, p=.043, \eta_p^2=.02$, and Information Type, $F(1.86, 380.66)=65.35, p<.001, \eta_p^2=.24$, which were qualified by a Participant Age x Information Type interaction ($F(1.86, 380.66)=4.45, p=.014, \eta_p^2=.02$). No other main effects or interactions reached significance ($p \geq .146$).

To better understanding the Participant Age x Information Type interaction, we conducted two sets of tests. First, we compared how children and, separately, adults viewed individuals after hearing each type of information. This analysis included six comparisons; therefore, p values needed to be .008 or lower to pass the Bonferroni-corrected significance threshold. Both children and adults reported more positive attitudes toward those who were incarcerated because they did not have very much money while growing up than toward those who were incarcerated for doing something wrong and, separately, for being bad people ($ps \leq .001$, Cohen's $ds \geq .39$). Moreover, both children and adults expressed more favorable attitudes toward people who were incarcerated because they had done something wrong than toward people who were incarcerated because they were bad people ($ps \leq .002$, Cohen's $ds \geq .29$).

Second, we compared children's and adults' attitudes toward individuals within each information type condition. This analysis included three comparisons; therefore, p values needed

to be .017 or lower to pass the Bonferroni-corrected significance threshold. Children expressed more favorable attitudes toward those whose incarceration was attributed to poverty than did adults ($p=.003$, Cohen’s $d=.42$). However, children’s and adults’ attitudes toward individuals in the other two information type conditions did not significantly differ from one another ($ps\geq.456$, Cohen’s $ds\leq.11$).

Study 1: Omnibus ANOVA And Pairwise Comparisons Including Item Type

As reported in the main text, we also examined the extent to which participants responded differently to the items probing how much they disliked each person and the items probing how much they wanted each person to live in their neighborhood. Thus, in addition to the analyses reported in the main text, we also analyzed children’s responses using a 2 (Item Type: liking vs. neighborhood) x 3 (Information Type: internal vs. behavioral vs. societal) x 2 (Incarcerated Person Race: White vs. Black) mixed ANOVA with repeated measures on the first two factors. This analysis revealed a main effect of Information Type, $F(1.82, 152.88)=29.44$, $p<.001$, $\eta_p^2=.26$. No other main effects or interactions reached significance ($ps\geq.130$).

Study 1: Descriptive Statistics for Each Item

Table S3.1

Descriptive Statistics for Item Measuring (Dis-)Liking Among Children, Study 1 (1=most negative attitudes; 5=most positive attitudes)

Information Type	Specific Information	Mean	Standard Deviation	N
Internal	“He is in prison because he is a bad person”	1.48	1.04	86
Behavioral	“He is in prison because he did something wrong”	1.66	1.00	86
Societal	“He is in prison because he didn’t have very much money when he was growing up”	2.27	1.37	86

Table S3.2

Descriptive Statistics for Item Measuring (Dis-)Liking Among Adults, Study 1 (1=most negative attitudes; 5=most positive attitudes)

Information Type	Specific Information	Mean	Standard Deviation	N
Internal	“He is in prison because he is a bad person”	1.47	.76	123
Behavioral	“He is in prison because he did something wrong”	1.68	.91	123
Societal	“He is in prison because he didn’t have very much money when he was growing up”	2.09	.93	123

Table S3.3

Descriptive Statistics for Item Measuring Desire to Avoid Individual Among Children, Study 1 (1=most negative attitudes; 5=most positive attitudes)

Information Type	Specific Information	Mean	Standard Deviation	N
Internal	“He is in prison because he is a bad person”	1.42	.95	86
Behavioral	“He is in prison because he did something wrong”	1.78	1.13	86
Societal	“He is in prison because he didn’t have very much money when he was growing up”	2.44	1.40	86

Table S3.4

Descriptive Statistics for Item Measuring Desire to Avoid Individual Among Adults, Study 1

(1=most negative attitudes; 5=most positive attitudes)

Information Type	Specific Information	Mean	Standard Deviation	N
Internal	“He is in prison because he is a bad person”	1.28	.62	123
Behavioral	“He is in prison because he did something wrong”	1.58	.91	123
Societal	“He is in prison because he didn’t have very much money when he was growing up”	1.80	.83	123

Study 1: Statistics Associated With Each Pairwise Comparison (Comparing Information Types Within Each Age Group)

Children:

Internal vs. behavioral: $p=.008$, Cohen’s $d=.29$, 95% CI_{diff}: [.07, .47]

Internal vs. societal: $p<.001$, Cohen’s $d=.75$, 95% CI_{diff}: [.65, 1.17]

Behavioral vs. societal: $p<.001$, Cohen’s $d=.51$, 95% CI_{diff}: [.37, .90]

Adults:

Internal vs. behavioral: $p<.001$, Cohen’s $d=.38$, 95% CI_{diff}: [.12, .40]

Internal vs. societal: $p<.001$, Cohen’s $d=.72$, 95% CI_{diff}: [.39, .74]

Behavioral vs. societal: $p=.001$, Cohen’s $d=.39$, 95% CI_{diff}: [.13, .49]

Study 1: Statistics Associated With Each Pairwise Comparison (Comparing Each Age Group With Each Other Age Group Within Every Information Type)

Internal:

Children vs. adults: $p=.463$, Cohen's $d=.10$, 95% CI_{diff} : [-.27, .12]

Behavioral:

Children vs. adults: $p=.456$, Cohen's $d=.11$, 95% CI_{diff} : [-.33, .15]

Societal:

Children vs. adults: $p=.003$, Cohen's $d=.42$, 95% CI_{diff} : [.14, .68]

Study 2a: Descriptive Statistics for Each Item

Table S3.5

Descriptive Statistics for Item Measuring (Dis-)Liking Among Adults, Study 2a (1=most negative attitudes; 5=most positive attitudes)

Information Type	Specific Information	Mean	Standard Deviation	N
Internal	“He is in prison because he is a bad person”	1.38	1.38	118
Behavioral	“He is in prison because he did something wrong”	1.71	.78	112
Societal	“He is in prison because he didn't have very much money when he was growing up”	2.72	1.14	117

Table S3.6

Descriptive Statistics for Item Measuring Desire to Avoid Individual Among Adults, Study 2a

(1=most negative attitudes; 5=most positive attitudes)

Information Type	Specific Information	Mean	Standard Deviation	N
Internal	“He is in prison because he is a bad person”	1.27	.65	118
Behavioral	“He is in prison because he did something wrong”	2.49	1.24	112
Societal	“He is in prison because he didn’t have very much money when he was growing up”	1.80	.83	117

Study 2a: Statistics Associated With Each Pairwise Comparison (Comparing Information Types)

Internal vs. behavioral: $p=.007$, Cohen’s $d=.46$, 95% CI_{diff} : [.08, .53]

Internal vs. societal: $p<.001$, Cohen’s $d=1.38$, 95% CI_{diff} : [1.06, 1.50]

Behavioral vs. societal: $p<.001$, Cohen’s $d=1.00$, 95% CI_{diff} : [.75, 1.19]

Studies 2a-3: Stimulus Example



Study 2b: Percent of Participants In Each Information Type Condition Agreeing With The “Do you think this person is incarcerated also because he committed a crime?” Item

Internal: 90%

Behavioral: 95%

Societal: 83%

Study 2b: Statistics Associated With Each McNemar’s Test (Comparing Responses Across Information Type Conditions)

Internal vs. behavioral: McNemar’s test, $N=116$, $p=.070$, $OR=7.00$

Internal vs. societal: McNemar’s test, $N=116$, $p=.077$, $OR=3.00$

Behavioral vs. societal: McNemar’s test, $N=117$, $p=.001$, $OR=8.00$

Study 3: Omnibus ANOVA And Pairwise Comparisons Including Item Type

As reported in the main text, we also examined the extent to which participants responded differently to the items probing how much they disliked each person and the items probing how much they wanted each person to live in their neighborhood. Thus, in addition to the analyses reported in the main text, we also analyzed children’s responses using a 2 (Item Type: liking vs. neighborhood) x 5 (Information Type: internal moral character vs. internal biological vs. behavioral vs. societal vs. irrelevant) within-participants ANOVA. This analysis revealed a main effect of Information Type, $F(1, 69)=116.37$, $p<.001$, $\eta_p^2=.63$. Neither the main effect of Item Type ($p=.223$) nor the Item Type x Information Type interaction ($p=.291$) reached significance.

Study 3: Descriptive Statistics for Each Item Measuring Attitudes

Table S3.7

Descriptive Statistics for Item Measuring (Dis-)Liking, Study 3 (1=most negative attitudes; 5=most positive attitudes)

Information Type	Specific Information	Mean	Standard Deviation	N
Internal moral character	“He is in prison because he is a bad person”	1.36	.89	70
Internal biological	“He is in prison because something in his brain makes him different from people who are not in prison”	3.19	1.53	70
Behavioral	“He is in prison because of the way he was born”	3.53	1.51	70
	“He is in prison because he broke the rules”	1.66	1.01	71
	“He is in prison because he made a mistake”	2.89	1.57	70
Societal	“He is in prison because he did something wrong”	1.97	1.34	71
	“He is in prison because he didn’t have very much money when he was growing up”	3.49	1.59	71
	“He is in prison because of the color of his skin”	3.86	1.43	70
Irrelevant	“He is in prison because the police arrest a lot of other people in his neighborhood”	3.03	1.56	72
	“He is in prison because he has a younger brother”	3.71	1.45	70
	“He is in prison because he uses his left hand to draw”	3.52	1.57	71
	“He is in prison because he ate a peanut butter and jelly sandwich for lunch yesterday”	3.73	1.56	70

Table S3.8

Descriptive Statistics for Item Measuring Desire to Avoid Individual, Study 3 (1=most negative attitudes; 5=most positive attitudes)

Information Type	Specific Information	Mean	Standard Deviation	N
Internal moral character	“He is in prison because he is a bad person”	1.57	1.10	70
Internal biological	“He is in prison because something in his brain makes him different from people who are not in prison”	3.00	1.61	70
Behavioral	“He is in prison because of the way he was born”	3.56	1.44	70
	“He is in prison because he broke the rules”	1.89	1.18	71
	“He is in prison because he made a mistake”	2.93	1.52	70
Societal	“He is in prison because he did something wrong”	2.04	1.27	71
	“He is in prison because he didn’t have very much money when he was growing up”	3.58	1.54	71
	“He is in prison because of the color of his skin”	3.83	1.40	70
Irrelevant	“He is in prison because the police arrest a lot of other people in his neighborhood”	3.01	1.61	72
	“He is in prison because he has a younger brother”	3.89	1.38	70
	“He is in prison because he uses his left hand to draw”	3.39	1.69	71
	“He is in prison because he ate a peanut butter and jelly sandwich for lunch yesterday”	4.09	1.36	70

Study 3: Statistics Associated With Each Pairwise Comparison (Comparing Information Types From Studies 1)

Internal vs. behavioral: $p < .001$, Cohen's $d = .44$, 95% CI_{diff}: [.26, .86]

Internal vs. societal: $p < .001$, Cohen's $d = 1.28$, 95% CI_{diff}: [1.67, 2.43]

Behavioral vs. societal: $p < .001$, Cohen's $d = .96$, 95% CI_{diff}: [1.12, 1.86]

Study 3: Statistics Associated With Each Pairwise Comparison (Comparing Information Types From Study 3, With Internal Characteristics Collapsed Into a Single Variable)

Internal vs. behavioral: $p < .001$, Cohen's $d = .63$, 95% CI_{diff}: [.29, .64]

Internal vs. societal: $p < .001$, Cohen's $d = 1.45$, 95% CI_{diff}: [.56, .95]

Internal vs. irrelevant: $p < .001$, Cohen's $d = 1.55$, 95% CI_{diff}: [1.26, 1.72]

Behavioral vs. societal: $p < .001$, Cohen's $d = .91$, 95% CI_{diff}: [1.02, 1.43]

Behavioral vs. irrelevant: $p < .001$, Cohen's $d = 1.26$, 95% CI_{diff}: [.84, 1.23]

Societal vs. irrelevant: $p = .009$, Cohen's $d = .32$, 95% CI_{diff}: [-.48, -.07]

Study 3: Statistics Associated With Each Pairwise Comparison (Comparing Information Types From Study 3, With Internal Characteristics Separated Into Two Variables)

Internal moral character vs. behavioral: $p < .001$, Cohen's $d = .83$, 95% CI_{diff}: [-1.00, -.55]

Internal moral character vs. societal: $p < .001$, Cohen's $d = 1.53$, 95% CI_{diff}: [-2.30, -1.68]

Internal moral character vs. internal biological: $p < .001$, Cohen's $d = 1.36$, 95% CI_{diff}: [-2.18, -1.53]

Internal moral character vs. irrelevant: $p < .001$, Cohen's $d = 1.80$, 95% CI_{diff}: [-2.57, -1.97]

Behavioral vs. societal: $p < .001$, Cohen's $d = 1.45$, 95% CI_{diff}: [-1.42, -1.02]

Behavioral vs. internal biological: $p < .001$, Cohen's $d = 1.08$, 95% CI_{diff}: [-1.32, -.84]

Behavioral vs. irrelevant: $p < .001$, Cohen's $d = 1.55$, 95% CI_{diff}: [-1.72, -1.26]

Societal vs. internal biological: $p = .205$, Cohen's $d = .15$, 95% CI_{diff}: [-.35, .08]

Societal vs. irrelevant: $p = .009$, Cohen's $d = .32$, 95% CI_{diff}: [-.48, -.07]

Internal biological vs. irrelevant: $p < .001$, Cohen's $d = .46$, 95% CI_{diff}: [-.63, -.20]

Study 3: Descriptive Statistics for Each Item Measuring Perceived Deservingness

Table S3.9

Descriptive Statistics for Item Measuring Perceptions of Deservingness, Study 3 (1=least deserving of punishment; 6=most deserving of punishment)

Information Type	Specific Information	Mean	Standard Deviation	N
Internal moral character	“He is in prison because he is a bad person”	5.50	1.11	70
Internal biological	“He is in prison because something in his brain makes him different from people who are not in prison”	2.43	1.72	70
Behavioral	“He is in prison because of the way he was born”	1.83	1.48	70
	“He is in prison because he broke the rules”	4.94	1.57	71
	“He is in prison because he made a mistake”	2.89	1.98	70
Societal	“He is in prison because he did something wrong”	4.35	1.84	71
	“He is in prison because he didn’t have very much money growing up”	2.10	1.76	71
	“He is in prison because of the color of his skin”	1.76	1.51	70
Irrelevant	“He is in prison because the police arrest a lot of other people in his neighborhood”	2.40	1.87	72
	“He is in prison because he has a younger brother”	1.71	1.51	70
	“He is in prison because he uses his left hand to draw”	2.00	1.68	71
	“He is in prison because he ate a peanut butter and jelly sandwich for lunch yesterday”	1.57	1.42	70

Study 3: Mediation Models

Table S3.10

Total, Direct, and Indirect Effects for Mediation Analyses, Study 3 (Internal Characteristics Collapsed Into a Single Variable)

Comparison			Total Effect	Direct Effect	Indirect Effect
Internal	v.	Behavioral	Effect: .46, $p < .001$ 95% CI: [.28, .64]	Effect: .32, $p = .002$ 95% CI: [.12, .52]	Effect: .14, $p = .015$ 95% CI: [.05, .25]
Internal	v.	Societal	Effect: -.75, $p < .001$ 95% CI: [-.95, -.56]	Effect: -.44, $p < .001$ 95% CI: [-.69, -.19]	Effect: -.31, $p = .001$ 95% CI: [-.60, -.08]
Internal	v.	Irrelevant	Effect: -1.03, $p < .001$ 95% CI: [-1.23, -.84]	Effect: -.77, $p < .001$ 95% CI: [-1.07, -.46]	Effect: -.27, $p = .031$ 95% CI: [-.64, -.01]
Behavioral	v.	Societal	Effect: -1.22, $p < .001$ 95% CI: [-1.42, -1.02]	Effect: -.80, $p < .001$ 95% CI: [-1.10, -.50]	Effect: -.42, $p < .001$ 95% CI: [-.68, -.17]
Behavioral	v.	Irrelevant	Effect: -1.49, $p < .001$ 95% CI: [-1.72, -1.26]	Effect: -.93, $p < .001$ 95% CI: [-1.30, -.56]	Effect: -.56, $p < .001$ 95% CI: [-.93, -.28]
Societal	v.	Irrelevant	Effect: -.28, $p = .009$ 95% CI: [-.48, -.07]	Effect: -.13, $p = .153$ 95% CI: [-.32, .05]	Effect: -.14, $p = .019$ 95% CI: [-.29, -.03]

Table S3.11

Total, Direct, and Indirect Effects for Mediation Analyses, Study 3 (Internal Characteristics Segregated Into Two Variables: Moral Character and Biological Factors)

Comparison			Total Effect	Direct Effect	Indirect Effect
Internal moral character	v.	Behavioral	Effect: $-.77, p < .001$ 95% CI: $[-1.00, -.55]$	Effect: $-.40, p = .004$ 95% CI: $[-.68, -.12]$	Effect: $-.37, p < .001$ 95% CI: $[-.74, -.18]$
Internal moral character	v.	Societal	Effect: $-1.99, p < .001$ 95% CI: $[-2.31, -1.67]$	Effect: $-.74, p = .008$ 95% CI: $[-1.29, -.19]$	Effect: $-1.25, p < .001$ 95% CI: $[-1.90, -.68]$
Internal moral character	v.	Internal biological	Effect: $-1.85, p < .001$ 95% CI: $[-2.19, -1.52]$	Effect: $-.43, p = .167$ 95% CI: $[-1.05, .17]$	Effect: $-1.43, p < .001$ 95% CI: $[-2.27, -.69]$
Internal moral character	v.	Irrelevant	Effect: $-2.27, p < .001$ 95% CI: $[-2.57, -1.96]$	Effect: $-1.29, p < .001$ 95% CI: $[-1.94, -.64]$	Effect: $-.98, p < .001$ 95% CI: $[-1.98, -.15]$
Behavioral	v.	Internal biological	Effect: $-1.08, p < .001$ 95% CI: $[-1.32, -.84]$	Effect: $-.68, p < .001$ 95% CI: $[-1.04, -.32]$	Effect: $-.40, p = .005$ 95% CI: $[-.68, -.15]$
Societal	v.	Internal biological	Effect: $.14, p = .205$ 95% CI: $[-.08, .36]$	Effect: $.13, p = .195$ 95% CI: $[-.07, .33]$	Effect: $.01, p = .868$ 95% CI: $[-.10, .11]$
Internal biological	v.	Irrelevant	Effect: $-.41, p < .001$ 95% CI: $[-.73, -.10]$	Effect: $-.30, p = .006$ 95% CI: $[-.61, .01]$	Effect: $-.11, p = .038$ 95% CI: $[-.35, -.01]$

Study S1: Examining The Social Consequences of Paired Pieces of Information

About Why Someone Might Be Incarcerated

In Studies 1 and 3 in the main text, information linking incarceration with internal moral character led participants to hold particularly negative attitudes toward incarcerated people. Study S1 built on these results by asking how to attenuate these negative views. Specifically, we investigated whether the deleterious effects of linking incarceration with internal moral character could be ameliorated by simultaneously highlighting other types of information that are associated with relatively more positivity (e.g., information linking incarceration with societal factors). Further, we examined whether perceptions regarding the extent to which incarcerated individuals deserve to be incarcerated would continue to mediate the relation between information types and attitudes toward such individuals in this new sample.

Past work led to two competing predictions regarding how children might respond to hearing two types of information regarding why an individual is incarcerated. On one hand, children show high levels of optimism (e.g., Boseovski, 2010; Dunlea et al., 2020). Thus, when presented with two different types of information, children may primarily attend to the more positive one. For example, if presented with an individual whose incarceration is attributed to both societal inequalities and bad actions, children may selectively attune to the information about societal inequality because it is associated with less negativity about individuals than the information about bad actions. As a result, information that—in isolation—leads to relatively more positive perceptions of incarcerated individuals may ameliorate the negativity associated with information highlighting internal moral character. On the other hand, a separate literature suggests that children attend to, weigh, and remember negative information over positive or neutral information (Baltazar et al., 2012; Kinzler & Shutts, 2008). Therefore, it is possible that,

when presented with differing types of information for why an individual was incarcerated, the type of information associated with relatively more negativity would primarily guide children's attitudes. Study S1 tested between these possibilities.

Method

Participants. We recruited children from a museum in the northeastern United States and from a public library in the midwestern United States. All other recruitment procedures were identical to Studies 1 and 3 in the main text. The final sample included 75 6- to 8-year-olds ($M_{\text{age}}=6.96$ years, $SD_{\text{age}}=.78$ years; 56% female, 43% male, 1% other; 44% White or European-American, 9% Black or African-American, 12% Asian or Asian-American, 17% multiracial, 7% other, remainder unspecified; 16% Hispanic or Latinx, 75% not Hispanic or Latinx, remainder unspecified). Data from four additional participants were excluded because they did not understand the instructions for the study ($n=1$), heard another person's responses before participating ($n=1$), or experienced parental interference during testing ($n=2$).

Procedure. Children completed the experiment in two blocks. During Block 1, they viewed images of nine individuals who were described as being incarcerated. Images were displayed one at a time on a laptop computer screen. After showing children each image, the experimenter provided one (Trial 1) or two (Trials 2-9) pieces of information regarding why that individual was incarcerated. During Trial 1, participants learned that the individual was incarcerated for being a "bad person." The purpose of Trial 1 was to ascertain whether children evaluate single pieces of information differently from paired pieces of information. We compared attitudes resulting from paired pieces of information against those resulting from the piece of information referencing internal moral character because information about internal

moral character led participants to hold particularly negative views of incarcerated individuals in Studies 1 and 3.

During Trials 2-9, participants learned about individuals whose incarceration was attributed to their internal moral character and one other reason (e.g., “This person is in prison because he is a bad person and [X],” where X highlighted a behavior, a societal inequality, a biological factor, or an irrelevant reason for incarceration). For example, during one trial, an experimenter told participants that the character was incarcerated because he was a bad person *and* because he did not have very much money growing up. After learning about each individual, participants indicated whether or not they believed that person deserved to be incarcerated and how certain they were of their response in the same manner used in Study 3 in the main text. The items used in the paired-information trials were selected from the pool of items used in Study 3 in the main text. We chose these items based on how well they represented each information type. To determine representativeness, we calculated a mean attitude score for each information type based on the three items tested in Study 3 in the main text. We then selected the two items whose average attitude scores were closest to the overall mean for inclusion in the present study.

During Block 2, the experimenter re-introduced children to each character (e.g., “Remember this person? He is in prison because he is a bad person *and* because didn’t have very much money growing up”) and answered the same attitudinal questions used in Studies 1 and 3 in the main text. As in Block 1, children first learned about a character whose incarceration was attributed to a single reason. All other individuals were introduced in a random order. Additionally, the order of information type within each item was counterbalanced in both Blocks 1 and 2.

Results

The items referencing internal moral character were significantly correlated with one another ($r=.25, p=.03$); moreover, each set of items within all other information type conditions had acceptable reliability (the following Cronbach's alphas were determined by testing the reliability of the four attitudinal items per information type condition: $\alpha_{\text{character+behavioral}}=.73$; $\alpha_{\text{character+biological}}=.75$; $\alpha_{\text{character+societal}}=.85$; $\alpha_{\text{character+irrelevant}}=.78$). As such, we collapsed across items referencing the same information type combinations. See Tables S12 and S13 for descriptive statistics for each item.

To determine whether it was possible to attenuate the deleterious effects of attributing incarceration to internal moral character by simultaneously highlighting other types of information, we analyzed participants' responses using a 5-level (Information Type: internal moral character vs. internal moral character+bad action vs. internal moral character+societal inequality vs. internal moral character+internal biological factor vs. internal moral character+irrelevant) repeated measures ANOVA (Fig. S1). This analysis revealed a main effect of Information Type, $F(3.01, 219.50)=77.50, p<.001, \eta_p^2=.52$. To better understand this effect, we compared how children viewed individuals after hearing each type of information, for a total of 10 comparisons. Therefore, after applying a Bonferroni correction, p values needed to be .005 or lower to remain significant.

Participants reported more negative attitudes toward individuals whose incarceration was attributed to internal moral character alone than toward individuals whose incarceration was attributed to internal moral character and societal reasons, internal moral character and internal biological reasons, and, finally, internal moral character and irrelevant reasons ($ps<.001$, Cohen's $ds \geq 1.18$). Moreover, participants reported more negative attitudes toward individuals whose incarceration was attributed to internal moral character and behaviors than toward individuals

whose incarceration was attributed to internal moral character and societal reasons, internal moral character and internal biological reasons, and internal moral character and irrelevant reasons ($ps < .001$, Cohen's $ds \geq 1.05$). No other pairwise comparisons reached significance ($ps \geq .117$; Cohen's $ds \leq .18$).

Discussion

Study S1 investigated the extent to which the deleterious effects of attributing incarceration to internal moral character could be ameliorated by simultaneously highlighting other types of information that are associated with relatively more positivity. Overall, simultaneously highlighting other types of information, such as information linking incarceration with societal or internal biological factors, significantly attenuated the pernicious consequences of attributing incarceration to internal moral character. These results dovetail with prior work suggesting that children process information selectively to maintain optimistic views of others (e.g., Boseovski, 2010).

We observed one exception to this pattern of results: attitudes toward people who were incarcerated for both behaviors *and* internal moral character did not differ from attitudes toward people whose incarceration was attributed only to internal moral character. One possibility for this result is that simultaneously highlighting behaviors and internal moral character led children to view behaviors as stemming from underlying immoral traits. As demonstrated in Studies 1 and 3 in the main text, children differentiate between “being a bad person” and “doing something bad.” However, past work suggests that children have similar conceptual representations of behaviors and internal characteristics (e.g., traits, Liu et al., 2007). Thus, when simultaneously hearing about a person's internal characteristics *and* behaviors, children may have trouble

distinguishing the two concepts. This finding rules out the possibility that providing two pieces of information rather than one increases positivity toward incarcerated people.

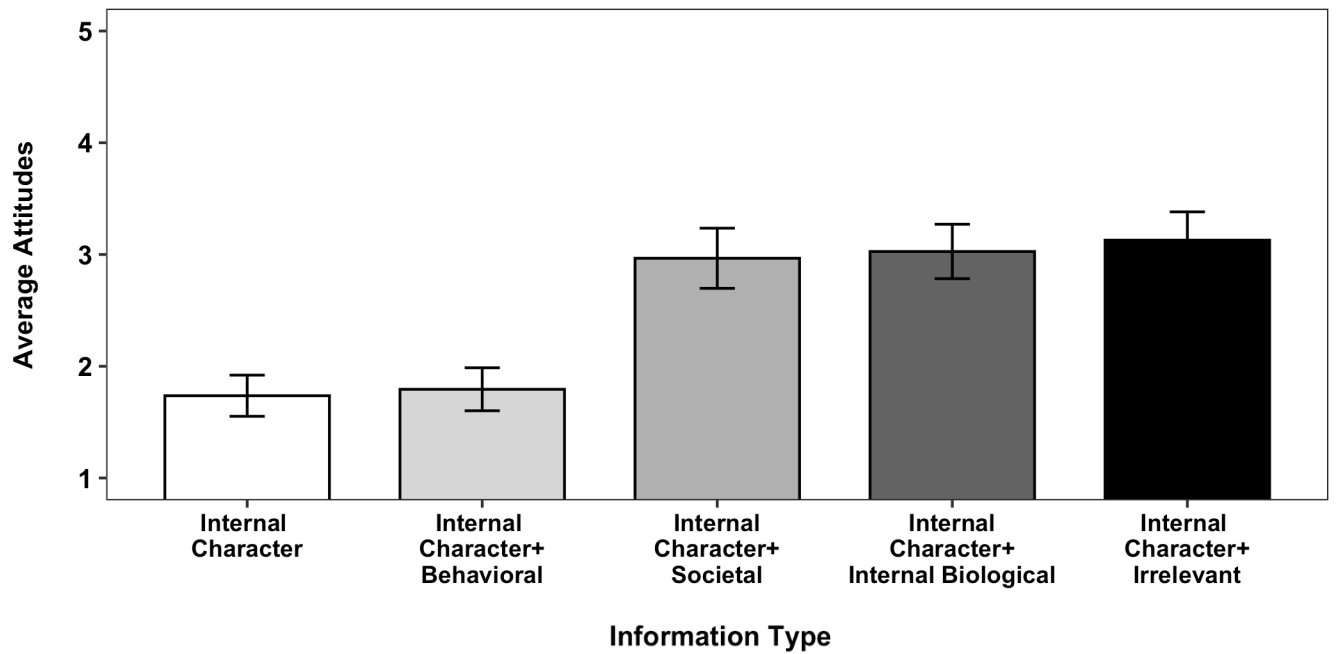


Fig. S3.12. Average attitudes toward people whose incarceration was attributed to different causes, Study S1. Higher values reflect more positive attitudes. Error bars represent 95% confidence intervals.

Study S1: Statistics Associated With Each Pairwise Comparison

Internal moral character vs. Internal moral character + Behavioral: $p=.523$, Cohen's $d=.08$, 95%

CI_{diff}: [-.24, .12]

Internal moral character vs. Internal moral character + Societal: $p<.001$, Cohen's $d=1.18$, 95%

CI_{diff}: [-1.47, -.99]

Internal moral character vs. Internal moral character + Internal biological: $p<.001$, Cohen's

$d=1.27$, 95% CI_{diff}: [-1.53, -1.06]

Internal moral character vs. Internal moral character + Irrelevant: $p<.001$, Cohen's $d=1.21$, 95%

CI_{diff}: [-1.59, -1.08]

Internal moral character + Behavioral vs. Internal moral character + Societal: $p<.001$, Cohen's

$d=1.05$, 95% CI_{diff}: [-1.43, -.91]

Internal moral character + Behavioral vs. Internal moral character + Internal biological: $p<.001$,

Cohen's $d=1.17$, 95% CI_{diff}: [-1.48, -.99]

Internal moral character + Behavioral vs. Internal moral character + Irrelevant: $p<.001$, Cohen's

$d=1.21$, 95% CI_{diff}: [-1.59, -1.08]

Internal moral character + Societal vs. Internal moral character + Internal biological: $p=.517$,

Cohen's $d=.08$, 95% CI_{diff}: [-.25, .13]

Internal moral character + Societal vs. Internal moral character + Irrelevant: $p=.117$, Cohen's

$d=.18$, 95% CI_{diff}: [-.37, .04]

Internal moral character + Internal biological vs. Internal moral character + Irrelevant: $p=.246$,

Cohen's $d=.14$, 95% CI_{diff}: [-.27, .07]

Study S1: Descriptive Statistics for Each Item Measuring Attitudes

Table S3.13

Descriptive Statistics for Item Measuring (Dis-)Liking, Study S1 (1=most negative attitudes; 5=most positive attitudes)

Information Type	Specific Information	Mean	Standard Deviation	N
Internal moral character	“He is in prison because he is a bad person”	1.62	.84	74
Internal moral character + Internal biological	“He is in prison because he is a bad person <i>and</i> because something in his brain makes him different from people who are not in prison”	3.01	1.41	74
	“He is in prison because he is a bad person <i>and</i> because of the way he was born”	3.00	1.44	74
Internal moral character + Behavioral	“He is in prison because he is a bad person <i>and</i> because he broke the rules”	1.62	1.02	74
	“He is in prison because he is a bad person <i>and</i> because he did something wrong”	1.72	1.01	74
Internal moral character + Societal	“He is in prison because he is a bad person <i>and</i> because he didn’t have very much money growing up”	3.12	1.32	74
	“He is in prison because he is a bad person <i>and</i> because of the color of his skin”	2.99	1.49	74
Internal moral character + Irrelevant	“He is in prison because he is a bad person <i>and</i> because he has a younger brother”	2.93	1.36	74
	“He is in prison because he is a bad person <i>and</i> because he ate a peanut butter and jelly sandwich for lunch yesterday”	3.36	1.47	74

Table S3.14

Descriptive Statistics for Item Measuring Desire to Avoid Individual, Study S1 (1=most negative attitudes; 5=most positive attitudes)

Information Type	Specific Information	Mean	Standard Deviation	N
Internal moral character	“He is in prison because he is a bad person”	1.85	1.56	74
Internal moral character + Internal biological	“He is in prison because he is a bad person <i>and</i> because something in his brain makes him different from people who are not in prison”	2.89	1.35	74
	“He is in prison because he is a bad person <i>and</i> because of the way he was born”	3.20	1.33	74
Internal moral character + Behavioral	“He is in prison because he is a bad person <i>and</i> because he broke the rules”	1.93	1.21	74
	“He is in prison because he is a bad person <i>and</i> because he did something wrong”	1.91	1.21	74
Internal moral character + Societal	“He is in prison because he is a bad person <i>and</i> because he didn’t have very much money growing up”	2.86	1.36	74
	“He is in prison because he is a bad person <i>and</i> because of the color of his skin”	2.89	1.42	74
Internal moral character + Irrelevant	“He is in prison because he is a bad person <i>and</i> because he has a younger brother”	3.05	1.35	74
	“He is in prison because he is a bad person <i>and</i> because he ate a peanut butter and jelly sandwich for lunch yesterday”	3.16	1.47	74

Study S1: Descriptive Statistics for Each Item Measuring Perceived Deservingness

Table S3.15

Descriptive Statistics for Item Measuring Perceptions of Deservingness, Study S1 (1=least deserving of punishment; 6=most deserving of punishment)

Information Type	Specific Information	Mean	Standard Deviation	N
Internal moral character	“He is in prison because he is a bad person”	4.99	1.51	75
Internal moral character + Internal biological	“He is in prison because he is a bad person <i>and</i> because something in his brain makes him different from people who are not in prison”	3.15	1.87	74
	“He is in prison because he is a bad person <i>and</i> because of the way he was born”	2.58	1.88	74
Internal moral character + Behavioral	“He is in prison because he is a bad person <i>and</i> because he broke the rules”	5.65	.90	74
	“He is in prison because he is a bad person <i>and</i> because he did something wrong”	4.78	1.70	74
Internal moral character + Societal	“He is in prison because he is a bad person <i>and</i> because he didn’t have very much money growing up”	2.58	1.74	74
	“He is in prison because he is a bad person <i>and</i> because of the color of his skin”	2.92	1.95	74
Internal moral character + Irrelevant	“He is in prison because he is a bad person <i>and</i> because he has a younger brother”	2.49	1.73	74
	“He is in prison because he is a bad person <i>and</i> because he ate a peanut butter and jelly sandwich for lunch yesterday”	2.14	1.63	74

Study S1: Mediation Models

Table S3.16

Total, Direct, and Indirect Effects for Mediation Analyses, Study S1

Comparison		Total Effect	Direct Effect	Indirect Effect
Internal moral character	v. Internal moral character + Behavioral	Effect: -.06, $p=.523$ 95% CI: [-.32, .20]	Effect: -.08, $p=.394$ 95% CI: [-.33, .18]	Effect: .02, $p=.381$ 95% CI: [-.06, .12]
Internal moral character	v. Internal moral character + Societal	Effect: -1.23, $p<.001$ 95% CI: [-1.58, -.88]	Effect: -.89, $p<.001$ 95% CI: [-1.42, -.35]	Effect: -.34, $p=.024$ 95% CI: [-.98, -.10]
Internal moral character	v. Internal moral character + Internal biological	Effect: -1.29, $p<.001$ 95% CI: [-1.63, -.95]	Effect: -.79, $p<.001$ 95% CI: [-1.27, -.31]	Effect: -.50, $p<.001$ 95% CI: [-1.01, -.12]
Internal moral character	v. Internal moral character + Irrelevant	Effect: -1.39, $p<.001$ 95% CI: [-1.75, -1.03]	Effect: -.85, $p<.001$ 95% CI: [-1.42, -.30]	Effect: -.54, $p=.001$ 95% CI: [-1.20, -.09]
Internal moral character + Behavioral	v. Internal moral character + Societal	Effect: -1.17, $p<.001$ 95% CI: [-1.55, -.80]	Effect: -.40, $p=.055$ 95% CI: [-.98, .19]	Effect: -.78, $p<.001$ 95% CI: [-1.44, -.26]
Internal moral character + Behavioral	v. Internal moral character + Internal biological	Effect: -1.23, $p<.001$ 95% CI: [-1.59, -.88]	Effect: -.46, $p=.016$ 95% CI: [-1.00, .08]	Effect: -.77, $p<.001$ 95% CI: [-1.36, -.28]

Internal moral character + Behavioral	v.	Moral character + Irrelevant	Effect: -1.33, $p < .001$ 95% CI: [-1.71, -.96]	Effect: -.17, $p = .448$ 95% CI: [-.83, .48]	Effect: -1.16, $p < .001$ 95% CI: [-1.82, -.54]
Internal moral character + Societal	v.	Internal moral character + Internal biological	Effect: -.06, $p = .517$ 95% CI: [-.33, .21]	Effect: -.08, $p = .384$ 95% CI: [-.35, .19]	Effect: .02, $p = .419$ 95% CI: [-.08, .11]
Internal moral character + Societal	v.	Internal moral character + Irrelevant	Effect: -.16, $p = .117$ 95% CI: [-.46, .13]	Effect: .10, $p = .411$ 95% CI: [-.37, .21]	Effect: -.08, $p = .067$ 95% CI: [-.32, .01]
Internal moral character + Internal biological	v.	Internal moral character + Irrelevant	Effect: -.10, $p = .150$ 95% CI: [-.35, .15]	Effect: -.01, $p = .943$ 95% CI: [-.26, .25]	Effect: -.10, $p = .028$ 95% CI: [-.24, .02]

Study 4: Omnibus ANOVA And Pairwise Comparisons Including Item Type

As reported in the main text, we examined the extent to which participants responded differently to the items probing how much they disliked each person and the items probing how much they wanted each person to live in their neighborhood. Thus, in addition to the analyses reported in the main text, we analyzed children's responses using a 2 (Item Type: liking vs. neighborhood) x 3 (Punishment Type: no punishment vs. in trouble vs. incarceration) x 5 (Information Type: internal moral character vs. behavioral vs. internal biological vs. societal vs. irrelevant) within-participants ANOVA. This analysis revealed a main effect of Information Type, $F(2.82, 69)=134.83, p<.001, \eta_p^2=.78$, and a Punishment Type x Information Type interaction, $F(5.87, 229.20)=3.23, p=.005, \eta_p^2=.08$. No other main effects or interactions reached significance ($ps \geq .258$).

Study 4: Stimulus Example



Study 4: Descriptive Statistics for Each Item

Table S3.17

Descriptive Statistics for Item Measuring (Dis-)Liking, Study 4 (1=most negative attitudes; 5=most positive attitudes)

Punishment Type	Information Type	Specific Information	Mean	Standard Deviation	N
No Punishment	Internal moral character	“He is a bad person”	1.05	.22	40
		“He is a mean person”	1.23	.53	40
	Internal biological	“He has something in his brain that makes him different from some other people”	3.18	1.41	40
		“He was born in a way that makes him who he is”	4.22	1.25	40
	Behavioral	“He broke the rules”	1.75	.87	40
		“He did something wrong”	2.05	1.09	40
	Societal	“He didn’t have very much money growing up”	3.78	1.14	40
		“He has this color skin”	3.05	1.47	39
		“He has a younger brother”	4.00	1.21	39
	Irrelevant	“He had a peanut butter and jelly sandwich for lunch yesterday”	3.58	1.32	40
In Trouble	Internal moral character	“He is in trouble because he is a bad person”	1.38	.71	40
		“He is in trouble because he is a mean person”	1.62	1.01	40
	Internal biological	“He is in trouble because something in his brain makes him different from people who are not in trouble”	3.45	1.54	40
		“He is in trouble because of the way he was born”	3.75	1.28	40
	Behavioral	“He is in trouble because he broke the rules”	2.00	1.22	40
		“He is in trouble because he did something wrong”	2.43	1.24	40

	Societal	“He is in trouble because he didn’t have very much money growing up”	3.93	1.31	40
		“He is in trouble because of the color of his skin”	3.68	1.40	40
		“He is in trouble because he has a younger brother”	3.47	1.47	40
	Irrelevant	“He is in trouble because he had a peanut butter and jelly sandwich for lunch yesterday”	3.68	1.19	40
	Internal moral character	“He is in prison because he is a bad person”	1.50	.93	40
		“He is in prison because he is a mean person”	1.50	.99	40
	Internal biological	“He is in prison because something in his brain makes him different from people who are not in trouble”	3.13	1.42	40
		“He is in prison because of the way he was born”	3.60	1.36	40
	Behavioral	“He is in prison because he broke the rules”	1.78	1.14	40
		“He is in prison because he did something wrong”	2.03	1.21	40
	Societal	“He is in prison because he didn’t have very much money growing up”	3.32	1.51	40
		“He is in prison because of the color of his skin”	3.63	1.41	40
		“He is in prison because he has a younger brother”	3.55	1.40	40
Incarceration	Irrelevant	“He is in prison because he had a peanut butter and jelly sandwich for lunch yesterday”	3.62	1.53	40

Table S3.18

Descriptive Statistics for Item Measuring Desire to Avoid Individual, Study 4 (1=most negative attitudes; 5=most positive attitudes)

Punishment Type	Information Type	Specific Information	Mean	Standard Deviation	N	
No Punishment	Internal moral character	“He is a bad person”	1.18	.39	40	
		“He is a mean person”	1.30	.52	40	
	Internal biological	“He has something in his brain that makes him different from some other people”	3.43	1.34	40	
		“He was born in a way that makes him who he is”	4.15	1.19	40	
	Behavioral	“He broke the rules”	1.75	1.03	40	
		“He did something wrong”	2.33	1.12	40	
	Societal	“He didn’t have very much money growing up”	3.75	1.26	40	
		“He has this color skin”	3.38	1.44	40	
	Irrelevant	“He has a younger brother”	3.65	1.15	40	
		“He had a peanut butter and jelly sandwich for lunch yesterday”	3.58	1.32	40	
	In Trouble	Internal moral character	“He is in trouble because he is a bad person”	1.38	.90	40
			“He is in trouble because he is a mean person”	1.80	1.14	40
Internal biological		“He is in trouble because something in his brain makes him different from people who are not in trouble”	3.48	1.34	40	
		“He is in trouble because of the way he was born”	3.53	1.43	40	
Behavioral		“He is in trouble because he broke the rules”	1.97	1.14	40	
		“He is in trouble because he did something wrong”	2.22	1.23	40	
Societal		“He is in trouble because he didn’t have very much money growing up”	3.93	1.25	40	

		“He is in trouble because of the color of his skin”	3.67	1.42	40
		“He is in trouble because he has a younger brother”	3.52	1.47	40
	Irrelevant	“He is in trouble because he had a peanut butter and jelly sandwich for lunch yesterday”	3.57	1.32	40
		“He is in prison because he is a bad person”	1.48	.99	40
	Internal moral character	“He is in prison because he is a mean person”	1.43	.87	40
		“He is in prison because something in his brain makes him different from people who are not in trouble”	3.08	1.44	40
	Internal biological	“He is in prison because of the way he was born”	3.27	1.55	40
		“He is in prison because he broke the rules”	1.83	1.20	40
	Behavioral	“He is in prison because he did something wrong”	2.13	1.29	40
		“He is in prison because he didn’t have very much money growing up”	3.55	1.28	40
	Societal	“He is in prison because of the color of his skin”	3.63	1.41	40
		“He is in prison because he has a younger brother”	3.63	1.48	40
	Irrelevant	“He is in prison because he had a peanut butter and jelly sandwich for lunch yesterday”	3.55	1.48	40

Study 4: Statistics Associated With Each Pairwise Comparison (Comparing Information Types Within Each Punishment Type Condition)

No Punishment:

Internal moral character vs. behavioral: $p < .001$, Cohen's $d = 1.06$, 95% CI_{diff} : [.55, 1.02]

Internal moral character vs. societal: $p < .001$, Cohen's $d = 2.19$, 95% CI_{diff} : [1.95, 2.62]

Internal moral character vs. internal biological: $p < .001$, Cohen's $d = 2.72$, 95% CI_{diff} : [2.26, 2.86]

Internal moral character vs. irrelevant: $p < .001$, Cohen's $d = 2.66$, 95% CI_{diff} : [2.21, 2.81]

Behavioral vs. societal: $p < .001$, Cohen's $d = 1.41$, 95% CI_{diff} : [1.17, 1.85]

Behavioral vs. internal biological: $p < .001$, Cohen's $d = 2.26$, 95% CI_{diff} : [1.52, 2.03]

Behavioral vs. irrelevant: $p < .001$, Cohen's $d = 1.67$, 95% CI_{diff} : [1.40, 2.06]

Societal vs. internal biological: $p = .081$, Cohen's $d = .28$, 95% CI_{diff} : [-.57, .03]

Societal vs. irrelevant: $p = .258$, Cohen's $d = .18$, 95% CI_{diff} : [-.62, .17]

Internal biological vs. irrelevant: $p = .781$, Cohen's $d = .04$, 95% CI_{diff} : [-.27, .40]

In Trouble:

Internal moral character vs. behavioral: $p < .001$, Cohen's $d = .67$, 95% CI_{diff} : [.32, .91]

Internal moral character vs. societal: $p < .001$, Cohen's $d = 2.04$, 95% CI_{diff} : [1.90, 2.61]

Internal moral character vs. internal biological: $p < .001$, Cohen's $d = 1.74$, 95% CI_{diff} : [1.64, 2.37]

Internal moral character vs. irrelevant: $p < .001$, Cohen's $d = 1.74$, 95% CI_{diff} : [1.65, 2.39]

Behavioral vs. societal: $p < .001$, Cohen's $d = 1.63$, 95% CI_{diff} : [1.32, 1.98]

Behavioral vs. internal biological: $p < .001$, Cohen's $d = 1.52$, 95% CI_{diff} : [1.10, 1.69]

Behavioral vs. irrelevant: $p < .001$, Cohen's $d = 1.41$, 95% CI_{diff} : [1.09, 1.72]

Societal vs. internal biological: $p = .027$, Cohen's $d = .36$, 95% CI_{diff} : [.03, .47]

Societal vs. irrelevant: $p = .155$, Cohen's $d = .23$, 95% CI_{diff} : [-.09, .57]

Internal biological vs. irrelevant: $p = .940$, Cohen's $d = .01$, 95% CI_{diff} : [-.35, .32]

Incarceration:

Internal moral character vs. behavioral: $p=.002$, Cohen's $d=.54$, 95% CI_{diff}: [.19, .74]

Internal moral character vs. societal: $p<.001$, Cohen's $d=1.48$, 95% CI_{diff}: [1.61, 2.50]

Internal moral character vs. biological factor: $p<.001$, Cohen's $d=1.25$, 95% CI_{diff}: [1.33, 2.25]

Internal moral character vs. irrelevant: $p<.001$, Cohen's $d=1.68$, 95% CI_{diff}: [1.71, 2.52]

Behavioral vs. societal: $p<.001$, Cohen's $d=1.24$, 95% CI_{diff}: [1.18, 2.00]

Behavioral vs. internal biological: $p<.001$, Cohen's $d=1.06$, 95% CI_{diff}: [.93, 1.73]

Behavioral vs. irrelevant: $p<.001$, Cohen's $d=1.45$, 95% CI_{diff}: [1.29, 2.01]

Societal vs. internal biological: $p=.042$, Cohen's $d=.33$, 95% CI_{diff}: [.01, .52]

Societal vs. irrelevant: $p=.719$, Cohen's $d=.06$, 95% CI_{diff}: [-.37, .26]

Internal biological vs. irrelevant: $p=.018$, Cohen's $d=.39$, 95% CI_{diff}: [.06, .58]

Study 4: Statistics Associated With Each Pairwise Comparison (Comparing Information Types Across Each Punishment Type Condition)

Internal moral character:

No punishment vs. trouble: $p=.005$, Cohen's $d=.47$, 95% CI_{diff}: [.12, .60]

No punishment vs. incarceration: $p=.024$, Cohen's $d=.37$, 95% CI_{diff}: [.04, .54]

Trouble vs. incarceration: $p=.659$, Cohen's $d=.07$, 95% CI_{diff}: [-.24, .38]

Behavioral:

No punishment vs. trouble: $p=.163$, Cohen's $d=.22$, 95% CI_{diff}: [-.45, .08]

No punishment vs. incarceration: $p=.835$, Cohen's $d=.03$, 95% CI_{diff}: [-.27, .33]

Trouble vs. incarceration: $p=.087$, Cohen's $d=.28$, 95% CI_{diff}: [-.03, .47]

Societal:

No punishment vs. trouble: $p=.051$, Cohen's $d=.32$, 95% CI_{diff}: [-.65, 0]

No punishment vs. incarceration: $p=.762$, Cohen's $d=.05$, 95% CI_{diff}: [-.41, .31]

Trouble vs. incarceration: $p=.020$, Cohen's $d=.38$, 95% CI_{diff}: [.04, .49]

Internal biological:

No punishment vs. trouble: $p=.190$, Cohen's $d=.21$, 95% CI_{diff}: [-.10, .49]

No punishment vs. incarceration: $p=.014$, Cohen's $d=.41$, 95% CI_{diff}: [.10, .85]

Trouble vs. incarceration: $p=.032$, Cohen's $d=.35$, 95% CI_{diff}: [.03, .54]

Irrelevant:

No punishment vs. trouble: $p=.404$, Cohen's $d=.13$, 95% CI_{diff}: [-.19, .47]

No punishment vs. incarceration: $p=.568$, Cohen's $d=.09$, 95% CI_{diff}: [-.28, .51]

Trouble vs. incarceration: $p=.895$, Cohen's $d=.02$, 95% CI_{diff}: [-.41, .36]

Appendix C: Supplementary Materials for Chapter 4

Study 1: Analyses Comparing Responses Of Participants Who Reported Knowing At Least One Incarcerated Person With Responses of Participants Who Did Not

We conducted a series of independent-samples t tests to examine whether knowing an incarcerated person predicted perceived change scores for “mean” and, separately, “nice” individuals in the punishment condition and, separately, the business trip condition. This approach resulted in four analyses among children and, separately, four among adults, for a total of eight tests. Therefore, p values needed to be .006 or lower to pass the Bonferroni-corrected significance threshold. Among children, no significant differences in responses emerged between those who knew an incarcerated person and those who did not. This pattern emerged in both the punishment condition (“nice” individuals: $t(43)=.29, p=.773$, Cohen’s $d=.15$, 95% CI_{diff}: [-.64, .86]; “mean” individuals: $t(43)=1.65, p=.105$, Cohen’s $d=.87$, 95% CI_{diff}: [-.19, 1.96]) and the business trip condition (“nice” individuals: $t(42)=-.80, p=.428$, Cohen’s $d=.48$, 95% CI_{diff}: [-.90, .39]; “mean” individuals: $t(42)=.44, p=.660$, Cohen’s $d=.27$, 95% CI_{diff}: [-.84, 1.31]). We found a similar non-significant pattern of results among adults in the punishment condition (“nice” individuals: $t(46)=-1.06, p=.259$, Cohen’s $d=.31$, 95% CI_{diff}: [-.51, .16]; “mean” individuals: $t(46)=-1.05, p=.300$, Cohen’s $d=.31$, 95% CI_{diff}: [-.44, .14]) and the business trip condition (“nice” individuals: $t(43)=.45, p=.655$, Cohen’s $d=.15$, 95% CI_{diff}: [-.16, .26]; “mean” individuals: $t(41)=1.26, p=.215$, Cohen’s $d=.43$, 95% CI_{diff}: [-.11, .46]). Thus, we did not find strong evidence that knowing at least one incarcerated person predicted participants’ responses.

Study 1: Analyses Comparing Responses Of White and Non-White Participants

We conducted a series of independent-samples t tests to examine whether participant race (White vs. non-White) predicted perceived change scores for “mean” and, separately, “nice” individuals in the punishment condition and, separately, the business trip condition. This approach resulted in four analyses among children and, separately, four among adults, for a total of eight tests.

Therefore, p values needed to be .006 or lower to pass the Bonferroni-corrected significance threshold. No significant differences in responses emerged between White and non-White children in the punishment condition (“nice” individuals: $t(44)=-1.02$, $p=.314$, Cohen’s $d=.30$, 95% CI_{diff} : [-.61, .20]; “mean” individuals: $t(44)=-.50$, $p=.668$, Cohen’s $d=.13$, 95% CI_{diff} : [-.49, .76]) or the business trip condition (“nice” individuals: $t(42)=.34$, $p=.737$, Cohen’s $d=.10$, 95% CI_{diff} : [-.27, .38]; “mean” individuals: $t(28.04)=2.33$, $p=.027$, Cohen’s $d=.72$, 95% CI_{diff} : [.07, 1.14]). We found a similar non-significant pattern of results among adults in the punishment condition (“nice” individuals: $t(44.54)=.89$, $p=.376$, Cohen’s $d=.23$, 95% CI_{diff} : [-.17, .44]; “mean” individuals: $t(46)=.54$, $p=.223$, Cohen’s $d=.36$, 95% CI_{diff} : [-.11, .47]) and the business trip condition (“nice” individuals: $t(43)=-.19$, $p=.851$, Cohen’s $d=.06$, 95% CI_{diff} : [-.21, .17]; “mean” individuals: $t(41)=.39$, $p=.695$, Cohen’s $d=.12$, 95% CI_{diff} : [-.21, .31]). Thus, we did not find strong evidence that racial group membership predicted participants’ responses.

Study 1: Analyses Comparing Responses Of Hispanic/Latinx and Non-Hispanic/Latinx

Participants

We conducted a series of independent-samples t tests to examine whether participant ethnicity (Hispanic/Latinx vs. non-Hispanic/Latinx) predicted perceived change scores for “mean” and, separately, “nice” individuals in the punishment condition and, separately, the business trip condition. This approach resulted in four analyses among children and, separately, four among adults, for a total of eight tests. Therefore, p values needed to be .006 or lower to pass the Bonferroni-corrected significance threshold. No significant differences in responses emerged between Hispanic/Latinx and non-Hispanic/Latinx children in the punishment condition (“nice” individuals: $t(7.16)=1.57$, $p=.159$, Cohen’s $d=1.22$, 95% CI_{diff} : [-.38, 1.93]; “mean” individuals: $t(43)=-.50$, $p=.621$, Cohen’s $d=.19$, 95% CI_{diff} : [-1.03, .62]) or the business trip condition (“nice” individuals: $t(43)=-1.73$, $p=.091$, Cohen’s $d=.64$, 95% CI_{diff} : [-.71, .05]; “mean” individuals: $t(9.38)=.80$, $p=.445$, Cohen’s $d=.41$, 95% CI_{diff} : [-

.65, 1.35]). We found a similar non-significant pattern of results among adults in the punishment condition (“nice” individuals: $t(46)=-.14, p=.889$, Cohen’s $d=.07$, 95% CI_{diff} : [-.59, .51]; “mean” individuals: $t(46)=.54, p=.593$, Cohen’s $d=.25$, 95% CI_{diff} : [-.35, .60]) and the business trip condition (“nice” individuals: $t(43)=-.22, p=.827$, Cohen’s $d=.12$, 95% CI_{diff} : [-.37, .30]; “mean” individuals: $t(41)=.31, p=.760$, Cohen’s $d=.16$, 95% CI_{diff} : [-.37, .51]). Thus, we did not find strong evidence that reported ethnic group membership predicted participants’ responses.

Study 1: Example Coding Sheet for Punishment Condition

The document below is one example of a coding sheet for the punishment condition in Study 1. Study 1 contained three additional coding sheets; however, the only difference between the coding sheet presented below and the additional coding sheets is vignette order (the order in which participants learned about each individual was counterbalanced across participants) and the order of experimental items regarding each individual. As stated in the Main Text, our main research question concerned children's and adults' views of individuals' moral characteristics. Thus, only experimental items concerning "nice" and "mean" individuals are relevant to the results presented in the Main Text, and the results presented there do not focus on experimental items concerning either "religious" or "atheistic" individuals (e.g., items referencing church, praying, belief in God).

SCALE-CHECK:

In this game, I'm going to show you some pictures on my computer screen and tell you about the people in the pictures. After I show you these pictures, I'm going to be asking you with how much you agree or disagree with some sentences I say about these people. You can tell me what you think by pointing to one of these people on this piece of paper.

If you don't agree at all, you would point here [point to smallest person]. If you agree a little bit, you would point here [point to second smallest person]. If you agree a medium amount, you would point here [point to middle person]. If you agree a lot, you would point here [point to second-largest person]. If you agree completely, you would point here [point to the largest person].

So basically, the more you agree with the answer, the bigger the picture you would point to. Does that make sense?

Can you show me where you would point if you didn't agree with the answer at all? _____

[If they get it right the first time, move on to the next question. If they get it wrong, say, "Well, actually, if you didn't agree at all, you would point here [point to correct picture]. Can you show me where you would point if you didn't agree at all?" _____]

Not at all / Agree a little bit / Agree a medium amount / Agree a lot / Completely agree

That's right. [Or "okay" – if they got the previous answer wrong both times.] And can you show me where you would point if you agreed a medium amount? _____

Not at all / Agree a little bit / Agree a medium amount / Agree a lot / Completely agree

[If they get it right the first time: "That's right, great job!" + move on to the first explanation. If they get it wrong, say, "Well, actually, if you agreed a medium amount, you would point here [point to correct picture]. Can you show me where you would point if you agreed a medium amount?" _____]

VIGNETTE 1

Look, here's Frank [point to screen]. Frank likes to start fights with other people. He is very mean. One day, Frank broke law and the cops arrested him [click to change slide]. Look, here is a police car taking

Frank to jail [point to screen; click again once police car leaves]. Now, Frank is in jail. [point to screen].

After spending some time in jail, Frank finds out there is “Helping Room” inside the jail. See the “Helping Room” right here? [point to the picture on screen] In the “Helping Room”, people in jail can spend time helping other people who need it.

Note: say “okay” every time a child provides an answer!

How much do you agree that...

❖ Frank wants to go to the “Helping Room” in the jail.

Not at all / Agree a little bit / Agree a medium amount / Agree a lot / Completely agree

❖ Now, Frank is a good person deep, deep down inside.

Not at all / Agree a little bit / Agree a medium amount / Agree a lot / Completely agree

❖ Frank *wants to* help people when he is in jail.

Not at all / Agree a little bit / Agree a medium amount / Agree a lot / Completely agree

❖ Now, Frank is kind to others.

Not at all / Agree a little bit / Agree a medium amount / Agree a lot / Completely agree

Frank stays in jail for a really, really long time. Eventually, Frank finishes all the time that he needed to spend in jail, and he is allowed to go back home [click to change slide]. See, this is a picture of Frank at home [point to screen]. After Frank leaves jail, he realizes there is a new “Helping Room” in his neighborhood [point to screen]. At this “Helping Room”, the people who live in Frank’s neighborhood can spend time helping other people who need it.

Note: say “okay” every time a child provides an answer!

How much do you agree that...

❖ Frank wants to go to the “Helping Room” in his neighborhood after he leaves jail.

Not at all / Agree a little bit / Agree a medium amount / Agree a lot / Completely agree

❖ Now, Frank is a good person deep, deep down inside.

Not at all / Agree a little bit / Agree a medium amount / Agree a lot / Completely agree

❖ Frank *wants to* help people after he leaves jail.

Not at all / Agree a little bit / Agree a medium amount / Agree a lot / Completely agree

❖ Now, Frank is kind to others.

Not at all / Agree a little bit / Agree a medium amount / Agree a lot / Completely agree

VIGNETTE 2

Look, here’s Kevin [point to screen]. Kevin thinks going to church and praying are boring. He thinks God is pretend. One day, Kevin broke the law and the cops arrested him [click to change slide]. Look, here is a police car taking Kevin to jail [point to screen; click again once police car leaves]. Now, Kevin is in jail. [point to screen].

Can you remind me, what does Kevin think? Does he think God is real, or does he think God is pretend? *Note: if participant gives an incorrect answer, provide corrective feedback*

“GOD IS PRETEND” → That is correct! Move to the next question.

“GOD IS REAL” → Actually, Kevin thinks God is pretend.

Can you remind me, where is Kevin right now? Is he in jail or is he at home? *Note: if participant gives an incorrect answer, provide corrective feedback*

“IN JAIL” → That is correct! Move to the next question.

“AT HOME” → Actually, Kevin is in jail right now.

After spending some time in jail, Kevin finds out there is a church inside the jail. See the church right here? [point to the picture on screen] In the church, people in jail can talk about how they think God is real and pray.

Note: say “okay” every time a child provides an answer!

How much do you agree that...

❖ Kevin wants to go to the church in the jail.

Not at all / Agree a little bit / Agree a medium amount / Agree a lot / Completely agree

❖ Now, Kevin *is a good person deep, deep down inside.*

Not at all / Agree a little bit / Agree a medium amount / Agree a lot / Completely agree

❖ Kevin *wants to pray* when he is in jail.

Not at all / Agree a little bit / Agree a medium amount / Agree a lot / Completely agree

❖ Now, Kevin thinks God is real.

Not at all / Agree a little bit / Agree a medium amount / Agree a lot / Completely agree

Kevin stays in jail for a really, really long time. Eventually, Kevin finishes all the time that he needed to spend in jail, and he is allowed to go back home [click to change slide]. See, this is a picture of Kevin at home [point to screen]. After Kevin leaves jail, he realizes there is a new church in his neighborhood [point to screen]. At this church, the people who live in Kevin’s neighborhood can talk about how they think God is real and pray.

Can you remind me, where is Kevin right now? Is he at home or is he in jail? *Note: if participant gives an incorrect answer, provide corrective feedback*

“AT HOME” → That is correct! Move to the next question.

“IN JAIL” → Actually, Kevin is at home right now.

Note: say “okay” every time a child provides an answer!

How much do you agree that...

❖ Kevin wants to go to the church in his neighborhood after he leaves jail.

Not at all / Agree a little bit / Agree a medium amount / Agree a lot / Completely agree

❖ Now, Kevin is a good person deep, deep down inside.

Not at all / Agree a little bit / Agree a medium amount / Agree a lot / Completely agree

❖ Kevin *wants to pray* after he leaves jail.

Not at all / Agree a little bit / Agree a medium amount / Agree a lot / Completely agree

❖ Now, Kevin thinks God is real.

Not at all / Agree a little bit / Agree a medium amount / Agree a lot / Completely agree
[click to change slide]

VIGNETTE 3

Look, here's Drew [point to screen]. Drew likes to help others. He is very kind. One day, Drew broke law and the cops arrested him [click to change slide]. Look, here is a police car taking Drew to jail [point to screen; click again once police car leaves]. Now, Drew is in jail. [point to screen].

After spending some time in jail, Drew finds out there is "Helping Room" inside the jail. See the "Helping Room" right here? [point to the picture on screen] In the "Helping Room", people in jail can spend time helping other people who need it

Note: say "okay" every time a child provides an answer!

How much do you agree that...

❖ Drew wants to go to the "Helping Room" in the jail.

Not at all / Agree a little bit / Agree a medium amount / Agree a lot / Completely agree

❖ Now, Drew is a good person deep, deep down inside.

Not at all / Agree a little bit / Agree a medium amount / Agree a lot / Completely agree

❖ Drew *wants to help* people when he is in jail.

Not at all / Agree a little bit / Agree a medium amount / Agree a lot / Completely agree

❖ Now, Drew is kind to others.

Not at all / Agree a little bit / Agree a medium amount / Agree a lot / Completely agree

Drew stays in jail for a really, really long time. Eventually, Drew finishes all the time that he needed to spend in jail, and he is allowed to go back home [click to change slide]. See, this is a picture of Drew at home [point to screen]. After Drew leaves jail, he realizes there is a new "Helping Room" in his neighborhood [point to screen]. At this "Helping Room", the people who live in Drew's neighborhood can spend time helping other people who need it.

Note: say "okay" every time a child provides an answer!

How much do you agree that...

❖ Drew wants to go to the "Helping Room" in his neighborhood after he leaves jail.

Not at all / Agree a little bit / Agree a medium amount / Agree a lot / Completely agree

❖ Now, Drew is a good person deep, deep down inside.

Not at all / Agree a little bit / Agree a medium amount / Agree a lot / Completely agree

❖ Drew *wants to help* people after he leaves jail.

Not at all / Agree a little bit / Agree a medium amount / Agree a lot / Completely agree

❖ Now, Drew is kind to others.

Not at all / Agree a little bit / Agree a medium amount / Agree a lot / Completely agree

That is the end of the game, and you did a great job! Thank you so much for helping us out today.
[Give participant a prize and answer any questions from the participant and family members.]

VIGNETTE 4

Look, here's Seth [point to screen]. Seth likes to go to church and pray. He thinks God is real. One day, Seth broke law and the cops arrested him [click to change slide]. Look, here is a police car taking Seth to jail [point to screen; click again once police car leaves]. Now, Seth is in jail. [point to screen].

After spending some time in jail, Seth finds out there is a church inside the jail. See the church right here? [point to the picture on screen] In the church, people in jail can talk about how they think God is real and pray.

Note: say "okay" every time a child provides an answer!

How much do you agree that...

❖ Seth wants to go to the church in the jail.

Not at all / Agree a little bit / Agree a medium amount / Agree a lot / Completely agree

❖ Now, Seth is a good person deep, deep down inside.

Not at all / Agree a little bit / Agree a medium amount / Agree a lot / Completely agree

❖ Seth *wants to pray* when he is in jail.

Not at all / Agree a little bit / Agree a medium amount / Agree a lot / Completely agree

❖ Now, Seth thinks God is real.

Not at all / Agree a little bit / Agree a medium amount / Agree a lot / Completely agree

Seth stays in jail for a really, really long time. Eventually, Seth finishes all the time that he needed to spend in jail, and he is allowed to go back home [click to change slide]. See, this is a picture of Seth at home [point to screen]. After Seth leaves jail, he realizes there is a new church in his neighborhood [point to screen]. At this church, the people who live in Seth's neighborhood can talk about how they think God is real and pray.

Note: say "okay" every time a child provides an answer!

How much do you agree that...

❖ Seth wants to go to the church in his neighborhood after he leaves jail.

Not at all / Agree a little bit / Agree a medium amount / Agree a lot / Completely agree

❖ Seth is a good person deep, deep down inside.

Not at all / Agree a little bit / Agree a medium amount / Agree a lot / Completely agree

❖ Seth *wants to pray* after he leaves jail.

Not at all / Agree a little bit / Agree a medium amount / Agree a lot / Completely agree

❖ Seth thinks God is real.

Not at all / Agree a little bit / Agree a medium amount / Agree a lot / Completely agree

[click to change slide]

Study 1: Example Coding Sheet for Business Trip Condition

The document below is one example of a coding sheet for the business trip condition in Study 1. Study 1 contained three additional coding sheets; however, the only difference between the coding sheet presented below and the additional coding sheets is vignette order (the order in which participants learned about each individual was counterbalanced across participants) and the order of experimental items regarding each individual. As stated in the Main Text, our main research question concerned children's and adults' views of individuals' moral characteristics. Thus, only experimental items concerning "nice" and "mean" individuals are relevant to the results presented in the Main Text, and the results presented in the Main Text do not focus experimental items concerning either "religious" or "atheistic" individuals (e.g., items referencing church, praying, belief in God).

SCALE-CHECK:

In this game, I'm going to show you some pictures on my computer screen and tell you about the people in the pictures. After I show you these pictures, I'm going to be asking you with how much you agree or disagree with some sentences I say about these people. You can tell me what you think by pointing to one of these people on this piece of paper.

If you don't agree at all, you would point here [point to smallest person]. If you agree a little bit, you would point here [point to second smallest person]. If you agree a medium amount, you would point here [point to middle person]. If you agree a lot, you would point here [point to second-largest person]. If you agree completely, you would point here [point to the largest person].

So basically, the more you agree with the answer, the bigger the picture you would point to. Does that make sense?

Can you show me where you would point if you didn't agree with the answer at all? _____

[If they get it right the first time, move on to the next question. If they get it wrong, say, "Well, actually, if you didn't agree at all, you would point here [point to correct picture]. Can you show me where you would point if you didn't agree at all?" _____]

Not at all / Agree a little bit / Agree a medium amount / Agree a lot / Completely agree

That's right. [Or "okay" – if they got the previous answer wrong both times.] And can you show me where you would point if you agreed a medium amount? _____

Not at all / Agree a little bit / Agree a medium amount / Agree a lot / Completely agree

[If they get it right the first time: "That's right, great job!" + move on to the first explanation. If they get it wrong, say, "Well, actually, if you agreed a medium amount, you would point here [point to correct picture]. Can you show me where you would point if you agreed a medium amount?" _____]

VIGNETTE 1

Look, here's Frank [point to screen]. Frank likes to start fights with other people. He is very mean. One day, Frank's boss called him and said that Frank needed to go away on a long business trip and work in

a new building. Look, here is an airplane taking Frank to on his business trip. [point to screen]. Now, Frank is in his new building. [point to screen].

After spending some time away on his business trip, Frank finds out there is a “Helping Room” inside the new office building. See the “Helping Room” right here? [point to the picture on screen] In the “Helping Room”, people in the office can spend time helping other people who need it.

Note: say “okay” every time a child provides an answer!

How much do you agree that...

❖ Frank wants to go to the “Helping Room” in his new office building.

Not at all / Agree a little bit / Agree a medium amount / Agree a lot / Completely agree

❖ Now, Frank is a good person deep, deep down inside.

Not at all / Agree a little bit / Agree a medium amount / Agree a lot / Completely agree

❖ Frank *wants to* help people when he is on his business trip.

Not at all / Agree a little bit / Agree a medium amount / Agree a lot / Completely agree

❖ Now, Frank is kind to others.

Not at all / Agree a little bit / Agree a medium amount / Agree a lot / Completely agree

Frank is away on his business trip for a really, really long time. Eventually, Frank finishes all the time that he needed to spend away on the business trip, and he is allowed to go back home [click to change slide]. See, this is a picture of Frank at home [point to screen]. After Frank is done with the business trip and is back at home, he realizes there is a new “Helping Room” in his neighborhood [point to screen]. At this “Helping Room”, the people who live in Frank’s neighborhood can spend time helping other people who need it.

Note: say “okay” every time a child provides an answer!

How much do you agree that...

❖ Frank wants to go to the “Helping Room” in his neighborhood after he gets back from the business trip.

Not at all / Agree a little bit / Agree a medium amount / Agree a lot / Completely agree

❖ Now, Frank is a good person deep, deep down inside.

Not at all / Agree a little bit / Agree a medium amount / Agree a lot / Completely agree

❖ Frank *wants to* help people after he gets back from the business trip.

Not at all / Agree a little bit / Agree a medium amount / Agree a lot / Completely agree

❖ Now, Frank is kind to others.

Not at all / Agree a little bit / Agree a medium amount / Agree a lot / Completely agree
[click to change slide]

VIGNETTE 2

Look, here's Kevin [point to screen]. Kevin thinks going to church and praying are boring. He thinks God is pretend. One day, Kevin's boss called him and said that Kevin needed to go away on a long business trip and work in a new building. Look, here is an airplane taking Kevin to on his business trip. [point to screen]. Now, Kevin is in his new building. [point to screen].

Can you remind me, what does Kevin believe? Does he think God is real, or does he think God is pretend? *Note: if participant gives an incorrect answer, provide corrective feedback*

“GOD IS PRETEND” → That is correct! Move to the next question.

“GOD IS REAL” → Actually, Kevin thinks God is pretend.

Can you remind me, where is Kevin right now? Is he in on his business trip or is he at home? *Note: if participant gives an incorrect answer, provide corrective feedback*

“ON BUSINESS TRIP” → That is correct! Move to the next question.

“AT HOME” → Actually, Kevin is on his business trip right now.

After spending some time away on his business trip, Kevin finds out there is a church inside the new office building. See the church right here? [point to the picture on screen] In the church, people in the office can talk about how they think God is real and pray.

Note: say “okay” every time a child provides an answer!

How much do you agree that...

❖ Kevin wants to go to the church in his new office building.

Not at all / Agree a little bit / Agree a medium amount / Agree a lot / Completely agree

❖ Now, Kevin *is a good person deep, deep down inside.*

Not at all / Agree a little bit / Agree a medium amount / Agree a lot / Completely agree

❖ Kevin *wants to pray* when he is on his business trip.

Not at all / Agree a little bit / Agree a medium amount / Agree a lot / Completely agree

❖ Now, Kevin thinks God is real.

Not at all / Agree a little bit / Agree a medium amount / Agree a lot / Completely agree

Kevin is away on his business trip for a really, really long time. Eventually, Kevin finishes all the time that he needed to spend away on the business trip, and he is allowed to go back home [click to change slide]. See, this is a picture of Kevin at home [point to screen]. After Kevin is done with the business trip and is back at home, he realizes there is a new church in his neighborhood [point to screen]. At this church, the people who live in Kevin's neighborhood can talk about how they think God is real and pray.

Can you remind me, where is Kevin right now? Is he at home, or on his business trip? *Note: if participant gives an incorrect answer, provide corrective feedback*

“AT HOME” → That is correct! Move to the next question.

“ON BUSINESS TRIP” → Actually, Kevin is at home right now.

Note: say “okay” every time a child provides an answer!

How much do you agree that...

❖ Kevin wants to go to the church in his neighborhood after he gets back from the business trip.
Not at all / Agree a little bit / Agree a medium amount / Agree a lot / Completely agree

❖ Now, Kevin is a good person deep, deep down inside.
Not at all / Agree a little bit / Agree a medium amount / Agree a lot / Completely agree

❖ Kevin *wants to pray* after he gets back from the business trip.
Not at all / Agree a little bit / Agree a medium amount / Agree a lot / Completely agree

❖ Now, Kevin thinks God is real.
Not at all / Agree a little bit / Agree a medium amount / Agree a lot / Completely agree
[click to change slide]

VIGNETTE 3

Look, here's Drew [point to screen]. Drew likes to help others. He is very kind. One day, Drew's boss called him and said that Drew needed to go away on a long business trip and work in a new building. Look, here is an airplane taking Drew to on his business trip. [point to screen]. Now, Drew is in his new building. [point to screen].

After spending some time away on his business trip, Drew finds out there is a "Helping Room" inside the new office building. See the "Helping Room" right here? [point to the picture on screen] In the "Helping Room", people in the office can spend time helping other people who need it.

Note: say "okay" every time a child provides an answer!

How much do you agree that...

❖ Drew wants to go to the "Helping Room" in his new office building.
Not at all / Agree a little bit / Agree a medium amount / Agree a lot / Completely agree

❖ Now, Drew is a good person deep, deep down inside.
Not at all / Agree a little bit / Agree a medium amount / Agree a lot / Completely agree

❖ Drew *wants to help* people when he is on his business trip.
Not at all / Agree a little bit / Agree a medium amount / Agree a lot / Completely agree

❖ Now, Drew is kind to others.
Not at all / Agree a little bit / Agree a medium amount / Agree a lot / Completely agree

Drew is away on his business trip for a really, really long time. Eventually, Drew finishes all the time that he needed to spend away on the business trip, and he is allowed to go back home [click to change slide]. See, this is a picture of Drew at home [point to screen]. After Drew is done with the business trip and is back at home, he realizes there is a new "Helping Room" in his neighborhood [point to screen]. At this "Helping Room", the people who live in Drew's neighborhood can spend time helping other people who need it.

Note: say "okay" every time a child provides an answer!

How much do you agree that...

- ❖ Drew wants to go to the “Helping Room” in his neighborhood after he gets back from the business trip.

Not at all / Agree a little bit / Agree a medium amount / Agree a lot / Completely agree

- ❖ Now, Drew is a good person deep, deep down inside.

Not at all / Agree a little bit / Agree a medium amount / Agree a lot / Completely agree

- ❖ Drew *wants to* help people after he gets back from the business trip.

Not at all / Agree a little bit / Agree a medium amount / Agree a lot / Completely agree

- ❖ Now, Drew is kind to others.

Not at all / Agree a little bit / Agree a medium amount / Agree a lot / Completely agree

That is the end of the game, and you did a great job! Thank you so much for helping us out today. [Give participant a prize and answer any questions from the participant and family members.]

VIGNETTE 4

Look, here’s Seth [point to screen]. Seth likes to go to church and pray. He thinks God is real. One day, Seth’s boss called him and said that Seth needed to go away on a long business trip and work in a new building. Look, here is an airplane taking Seth to on his business trip. [point to screen]. Now, Seth is in his new building. [point to screen].

After spending some time away on his business trip, Seth finds out there is a church inside the new office building. See the church right here? [point to the picture on screen] In the church, people in the office can talk about how they think God is real and pray.

Note: say “okay” every time a child provides an answer!

How much do you agree that...

- ❖ Seth wants to go to the church in his new office building.

Not at all / Agree a little bit / Agree a medium amount / Agree a lot / Completely agree

- ❖ Now, Seth is a good person deep, deep down inside.

Not at all / Agree a little bit / Agree a medium amount / Agree a lot / Completely agree

- ❖ Seth *wants to pray* when he is on his business trip.

Not at all / Agree a little bit / Agree a medium amount / Agree a lot / Completely agree

- ❖ Now, Seth thinks God is real.

Not at all / Agree a little bit / Agree a medium amount / Agree a lot / Completely agree

Seth is away on his business trip for a really, really long time. Eventually, Seth finishes all the time that he needed to spend away on the business trip, and he is allowed to go back home [click to change slide]. See, this is a picture of Seth at home [point to screen]. After Seth is done with the business trip

and is back at home, he realizes there is a new church in his neighborhood [point to screen]. At this church, the people who live in Seth's neighborhood can talk about how they think God is real and pray.

Note: say "okay" every time a child provides an answer!

How much do you agree that...

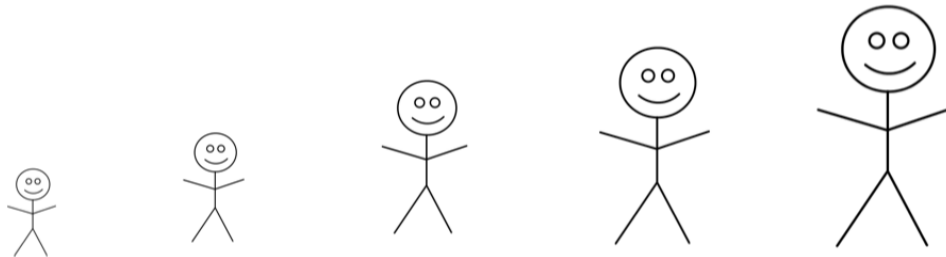
❖ Seth wants to go to the church in his neighborhood after he gets back from the business trip.
Not at all / Agree a little bit / Agree a medium amount / Agree a lot / Completely agree

❖ Now, Seth is a good person deep, deep down inside.
Not at all / Agree a little bit / Agree a medium amount / Agree a lot / Completely agree

❖ Seth *wants to pray* after he gets back from the business trip.
Not at all / Agree a little bit / Agree a medium amount / Agree a lot / Completely agree

❖ Now, Seth thinks God is real.
Not at all / Agree a little bit / Agree a medium amount / Agree a lot / Completely agree
[click to change slide]

Study 1: Scale Used for Closed-Ended Experimental Items



Study 1: Evaluations of “Religious” and “Atheistic” Individuals (Analyses Using Difference Scores)

Evaluations of “religious” individuals. First, we examined the extent to which participants reported that “religious” individuals changed after punishment and after going on a business trip. We used a series of one-sample t tests to compare perceived change scores to 0 (indicating, on average, no perceived change in religiosity) in each condition. We conducted these analyses for children and, separately, adults. This resulted in four comparisons; therefore, after applying a Bonferroni correction, p values needed to be .013 or lower to remain significant. The sample size of children allowed for detection of effects of size Cohen’s $|d|=.41$ in the punishment condition and .42 in the business trip condition. The sample size of adults allowed for detection of effects of size Cohen’s $|d|=.41$ in the punishment condition and .43 in the business trip condition. Children reported that “religious” individuals became more religious following punishment; however, this effect dropped to non-significance after applying the Bonferroni correction ($t(47)=2.15, p=.037$, Cohen’s $d=.31$, 95% CI_{diff} : [.01, .41]). Moreover, children did not report that “religious” individuals changed as a function of going on a business trip ($t(45)=-1.01, p=.320$, Cohen’s $d=-.15$, 95% CI_{diff} : [-.23, .08]). Like children, adults reported that “religious” individuals became more religious following punishment; however, this effect dropped to non-significance after applying the Bonferroni correction ($t(47)=-2.20, p=.033$, Cohen’s $d=-.32$, 95% CI_{diff} : [-.37, -.02]). Moreover, adults did not report that “religious” individuals changed as a function of going on a business trip ($t(44)=-1.82, p=.076$, Cohen’s $d=-.27$, 95% CI_{diff} : [-.29, .02]).

Next, we conducted a 2 (Participant Age: child vs. adult) x 2 (Condition: punishment vs. control) between-subjects ANOVA in order to investigate whether children and adults reported different magnitudes of change in each condition. This analysis revealed a main effect of Participant Age ($F(1, 183)=7.47, p=.007, \eta_p^2=.04$) and a Participant Age x Condition interaction ($F(1, 183)=4.00,$

$p=.047$, $\eta_p^2=.02$). The main effect of Condition did not reach significance ($p=.171$). To examine the Participant Age x Condition interaction, we conducted two sets of tests. First, we compared the magnitude of change children and, separately, adults expected in the punishment versus business trip conditions. This analysis included two comparisons; therefore, p values needed to be .025 or lower to pass the Bonferroni-corrected significance threshold. The current sample sizes allowed for detection of effects of size Cohen's $|d|=.58$ among children and .59 among adults. Children expected stronger increases in religiosity after punishment than after going on a business trip ($p=.018$, Cohen's $d=.48$, 95% CI_{diff} : [.05, .53]). However, this effect size was smaller than the smallest effect size that could be detected given the present samples. As such, caution is warranted in interpreting this result. Adults did not report that changes in religiosity differed across conditions ($p=.122$, Cohen's $d=.10$, 95% CI_{diff} : [- .29, .19]).

Second, we investigated whether children and adults reported different magnitudes of change in each condition. This analysis included two comparisons; therefore, p values needed to be .025 or lower to pass the Bonferroni-corrected significance threshold. This analysis could detect an effect of size Cohen's $|d|=.58$ in the punishment condition and .59 in the business trip condition. Children reported stronger increases in moral goodness after punishment than did adults ($p=.001$, Cohen's $d=.63$, 95% CI_{diff} : [.17, .64]). A significant difference in perceived change did not emerge between children and adults in the business trip condition ($p=.610$, Cohen's $d=.12$, 95% CI_{diff} : [- .18, .31]).

Evaluations of “atheistic” individuals. Next, we examined the extent to which participants perceive “atheistic” individuals' religiosity to change after receiving punishment and, separately, after going on a business trip. As above, we used a series of one-sample t -tests to compare perceived change scores to 0 in both conditions among children and, separately, adults. This resulted in four comparisons; therefore, after applying a Bonferroni correction, p values needed to be .013 or lower to remain significant. The sample size of children allowed for detection of effects of size Cohen's $|d|=.42$

across both conditions. The sample size of adults allowed for detection of effects of size Cohen's $|d|=.41$ in the punishment condition and $.43$ in the business trip condition. Adults reported that "atheistic" individuals became more religious following punishment ($t(47)=2.50, p=.016$, Cohen's $d=.36$, 95% CI_{diff} : [.03, .27]); however this effect dropped to non-significance after applying the Bonferroni correction. Moreover, adults did not report that "atheistic" individuals became more religious after going on a business trip ($t(44)=2.01, p=.051$, Cohen's $d=.30$, 95% CI_{diff} : [0, .24]). Unlike adults, children reported that "atheistic" individuals became significantly more religious after punishment ($t(46)=7.25, p<.001$, Cohen's $d=1.06$, 95% CI_{diff} : [.70, 1.24]) and after going on a business trip ($t(45)=2.62, p=.012$, Cohen's $d=.39$, 95% CI_{diff} : [.07, .52]).

Next, we conducted a 2 (Participant Age: child vs. adult) x 2 (Condition: punishment vs. control) between-subjects ANOVA in order to investigate whether children and adults reported different magnitudes of change in each condition. This analysis revealed main effects of Participant Age ($F(1, 182)=25.94, p<.001, \eta_p^2=.13$) and Condition ($F(1, 182)=13.20, p<.001, \eta_p^2=.07$). These main effects were qualified by a Participant Age x Condition interaction ($F(1, 182)=11.14, p=.001, \eta_p^2=.06$). To further examine this interaction, we conducted two sets of tests. First, we compared the magnitude of change children and, separately, adults expected in the punishment versus business trip conditions. This analysis included two comparisons; therefore, p values needed to be $.025$ or lower to pass the Bonferroni-corrected significance threshold. The sample size of children and, separately, adults allowed for detection of effects of size Cohen's $|d|=.59$. Children expected stronger increases in religiosity after punishment than after going on a business trip ($p<.001$, Cohen's $d=.81$, 95% CI_{diff} : [.41, .95]). This pattern did not emerge among adults ($p=.835$, Cohen's $d=.07$, 95% CI_{diff} : [-.24, .30]).

Second, we investigated whether children and adults reported different magnitudes of change in each condition. This analysis included two comparisons; therefore, p values needed to be $.025$ or lower to pass the Bonferroni-corrected significance threshold. This analysis could detect an effect of size

Cohen's $|d|=.58$ in the punishment condition and $.59$ in the business trip condition. Children reported stronger increases in religiosity after punishment than did adults ($p<.001$, Cohen's $d=1.15$, 95% CI_{diff} : $[.55, 1.09]$). No significant difference in perceived change emerged between children and adults in the business trip condition ($p=.221$, Cohen's $d=.28$, 95% CI_{diff} : $[-.10, .45]$).

Study 1: Details Regarding Sensitivity Power Analyses And Bonferroni-Adjusted p -values For Evaluations Of “Nice” Individuals (Using Difference Scores)

In the Main Text, we investigated evaluations of “nice” individuals using two types of analyses. First, we examined the extent to which participants reported that “nice” individuals changed after punishment and after going on a business trip. To do so, we used a series of one-sample t -tests to compare perceived change scores to 0 (indicating, on average, no perceived moral change) in each condition. We conducted these analyses for children and, separately, adults. This resulted in four comparisons; therefore, after applying a Bonferroni correction, p values needed to be $.013$ or lower to remain significant. The sample size of children allowed for detection of effects of size Cohen's $|d|=.41$ in the punishment condition and $.42$ in the business trip condition. The sample size of adults allowed for detection of effects of size Cohen's $|d|=.41$ in the punishment condition and $.43$ in the business trip condition.

Next, we conducted a 2 (Participant Age: child vs. adult) x 2 (Condition: punishment vs. control) between-participants ANOVA in order to investigate whether children and adults reported different magnitudes of change in each condition. As reported in the Main Text, this analysis revealed a Participant Age x Condition interaction. To examine this interaction, we conducted two sets of tests. First, we compared the magnitude of change children expected in the punishment condition with the magnitude of change children expected in the business trip condition, and we conducted an analogous comparison among adults. This analysis included two comparisons; therefore, p values needed to be $.025$ or lower to pass the Bonferroni-corrected significance threshold. The current sample sizes allowed

for detection of effects of size Cohen's $|d|=.58$ among children and $.59$ among adults. Second, we investigated whether children and adults reported different magnitudes of change in the punishment condition and, separately, the business trip condition. This analysis included two comparisons; therefore, p values needed to be $.025$ or lower to pass the Bonferroni-corrected significance threshold. This analysis could detect an effect of size Cohen's $|d|=.58$ in the punishment condition and $.59$ in the business trip condition.

Study 1: Details Regarding Sensitivity Power Analyses And Bonferroni-Adjusted p-values For Evaluations Of “Mean” Individuals (Using Difference Scores)

In the Main Text, we investigated participants evaluations of “mean” individuals using the same analyses as those described above for the “nice” individuals. This resulted in four comparisons; therefore, after applying a Bonferroni correction, p values needed to be $.013$ or lower to remain significant. The sample size of children allowed for detection of effects of size Cohen's $|d|=.42$ across both conditions. The sample size of adults allowed for detection of effects of size Cohen's $|d|=.41$ in the punishment condition and $.44$ in the business trip condition.

Next, we conducted a 2 (Participant Age: child vs. adult) x 2 (Condition: punishment vs. control) between-participants ANOVA in order to investigate whether children and adults reported different magnitudes of change in each condition. As reported in the Main Text, this analysis revealed a Participant Age x Condition interaction. To examine this interaction, we conducted two sets of tests. First, we compared the magnitude of change children expected in the punishment condition with the magnitude of change children expected in the business trip condition, and we conducted an analogous comparison among adults. This analysis included two comparisons; therefore, p values needed to be $.025$ or lower to pass the Bonferroni-corrected significance threshold. The sample size of children and, separately, adults allowed for detection of effects of size Cohen's $|d|=.59$. Second, we investigated whether children and adults reported different magnitudes of change in the punishment condition and,

separately, the business trip condition. This analysis included two comparisons; therefore, p values needed to be .025 or lower to pass the Bonferroni-corrected significance threshold. This analysis could detect an effect of size Cohen's $|d|=.58$ in the punishment condition and .60 in the business trip condition.

Study 1: Correlations Between Participants' Responses and Age

We correlated age with perceived change scores for “mean” and, separately, “nice” individuals in the punishment condition and, separately, in the business trip condition. This approach resulted in four analyses among children and, separately, four among adults, for a total of eight correlations. Therefore, p values needed to be .006 or lower to pass the Bonferroni-corrected significance threshold. No comparisons reached significance ($|r|s \leq .16$, $ps \geq .280$).

Study 1: Descriptive Statistics for Each Item (Difference Scores)

Table S4.1

Descriptive Statistics for Item Measuring Perceived Change in the Punishment Condition Among Children, Study 1 (-4= most negative change; +4=most positive change)

Characteristic Type	Mean	Standard Deviation	N
Nice	.17	.69	48
Mean	1.09	1.03	47
Religious	.21	.69	48
Atheistic	.97	.92	47

Table S4.2

Descriptive Statistics for Item Measuring Perceived Change in the Business Trip Condition Among Children, Study 1 (-4= most negative change; +4=most positive change)

Characteristic Type	Mean	Standard Deviation	N
Nice	-.14	.52	46
Mean	.37	.86	46
Religious	-.08	.51	46
Atheistic	.29	.76	46

Table S4.3

Descriptive Statistics for Item Measuring Perceived Change in the Punishment Condition Among Adults, Study 1 (-4= most negative change; +4=most positive change)

Characteristic Type	Mean	Standard Deviation	N
Nice	-.27	.57	48
Mean	.04	.49	48
Religious	-.19	.61	48
Atheistic	.15	.42	48

Table S4.4

Descriptive Statistics for Item Measuring Perceived Change in the Business Trip Condition Among Adults, Study 1 (-4= most negative change; +4=most positive change)

Characteristic Type	Mean	Standard Deviation	N
Nice	.03	.31	45
Mean	.06	.41	43
Religious	-.14	.51	45
Atheistic	.12	.41	45

Study 1: Evaluations of “Nice” and “Mean” Individuals (Analyses Using Raw Means)

Evaluations of “nice” individuals. In addition to analyzing the data using difference scores in the Main Text, we conducted additional analyses using participants responses to items measuring perceived moral character during and, separately, after jail or the business trip (Figure S1). Namely, we conducted a 2 (Participant Age: child vs. adult) x 2 (Condition: punishment vs. control) x 2 (Time: during vs. after) mixed ANOVA with repeated measures on the third factor. This analysis revealed a main effect of Participant Age ($F(1, 183)=65.40, p<.001, \eta_p^2=.26$). This main effect was qualified by a Participant Age x Condition x Time interaction ($F(1, 183)=14.70, p<.001, \eta_p^2=.07$). No other main effects or interactions reached significance ($p \geq .101$).

To better understand the three-way interaction, we analyzed the Condition x Time interaction separately for children and adults. When doing so, we found a Condition x Time interaction among children ($F(1, 92)=6.10, p=.015, \eta_p^2=.06$). To examine this Condition x Time interaction, we examined the extent to which children reported that individuals’ qualities changed from baseline in the punishment condition and, separately, the business trip condition. This analysis included two comparisons; therefore, p values needed to be .025 or lower to pass the Bonferroni-corrected significance threshold. The sample size of children allowed for detection of an effect of size Cohen’s $|d|=.41$ in both conditions. Children did not report that “nice” individuals’ positive qualities changed as a function of punishment ($p=.056$, Cohen’s $d=.25$, 95% CI_{diff} : [0, .35]). Moreover, a significant effect did not emerge in the business trip condition ($p=.122$, Cohen’s $d=-.27$, 95% CI_{diff} : [-.32, .04]).

This analysis also revealed a Condition x Time interaction among adults ($F(1, 91)=9.56, p=.003, \eta_p^2=.10$). To further probe this Condition x Time interaction, we examined the extent to which adults reported that individuals’ qualities changed from baseline in the punishment and, separately, the business trip condition. This analysis included two comparisons; therefore, p values needed to be .025 or lower to pass the Bonferroni-corrected significance threshold. The sample size of adult allowed for

detection of an effect of size Cohen's $|d|=.41$ in the punishment condition and .43 in the business trip condition. Adults indicated that "nice" individuals' positive qualities worsened as a result of punishment ($p<.001$, Cohen's $d=-.46$, 95% CI_{diff} : [-.40, -.13]). Also consistent with the results presented in the Main Text, adults did not report that "nice" individuals' positive qualities changed as a function of going on a business trip ($p=.632$, Cohen's $d=.11$, 95% CI_{diff} : [-.11, .17]).

Evaluations of "mean" individuals. In addition to analyzing the data using difference scores in the Main Text, we conducted additional analyses using responses to items measuring perceived moral character during and, separately, after jail or the business trip (Figure S2). Namely, we conducted a 2 (Participant Age: child vs. adult) x 2 (Condition: punishment vs. control) x 2 (Time: during vs. after) mixed ANOVA with repeated measures on the third factor. This analysis revealed main effects of Participant Age ($F(1, 180)=27.70$, $p<.001$, $\eta_p^2=.13$), Condition ($F(1, 180)=13.60$, $p<.001$, $\eta_p^2=.07$), and Time ($F(1, 180)=13.88$, $p<.001$, $\eta_p^2=.22$). These main effects were qualified by a Participant Age x Time interaction ($F(1, 180)=37.43$, $p<.001$, $\eta_p^2=.17$), by a Condition x Time interaction ($F(1, 180)=9.66$, $p=.002$, $\eta_p^2=.05$), and by a Participant Age x Condition x Time interaction ($F(1, 180)=11.27$, $p=.001$, $\eta_p^2=.06$). The Participant Age x Condition interaction did not reach significance ($p=.629$).

To better understand the three-way interaction, we analyzed the Condition x Time interaction separately for children and adults. When doing so, we found a Condition x Time interaction among children ($F(1, 91)=13.11$, $p<.001$, $\eta_p^2=.13$). To further probe this interaction, we examined the extent to which children reported that "mean" individuals' qualities changed from baseline in the punishment and, separately, the business trip condition. This analysis included two comparisons; therefore, p values needed to be .025 or lower to pass the Bonferroni-corrected significance threshold. The sample size of children allowed for detection of an effect of size Cohen's $|d|=.42$ in both conditions. Children indicated that "mean" individuals became "nicer" as a result of punishment ($p<.001$, Cohen's $d=1.05$,

95% CI_{diff} : [.81, 1.36]). This effect also emerged in the business trip condition ($p=.010$, Cohen's $d=.43$, 95% CI_{diff} : [.09, .65]), albeit being smaller in magnitude than the effect found in the punishment condition. For adults, in contrast, the Condition x Time interaction did not reach significance ($p=.775$).

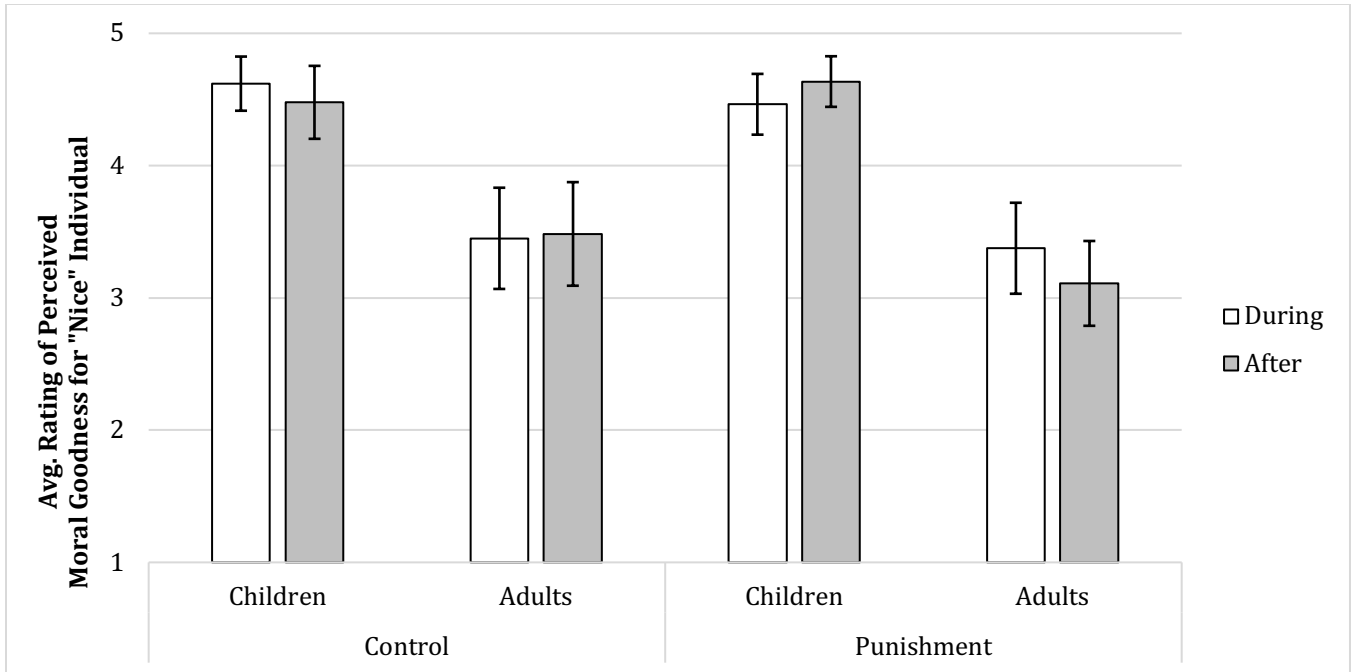


Figure S4.1. Average ratings of moral goodness, Study 1. Higher values indicate greater optimism about “nice” individuals’ moral character. Error bars represent 95% confidence intervals.

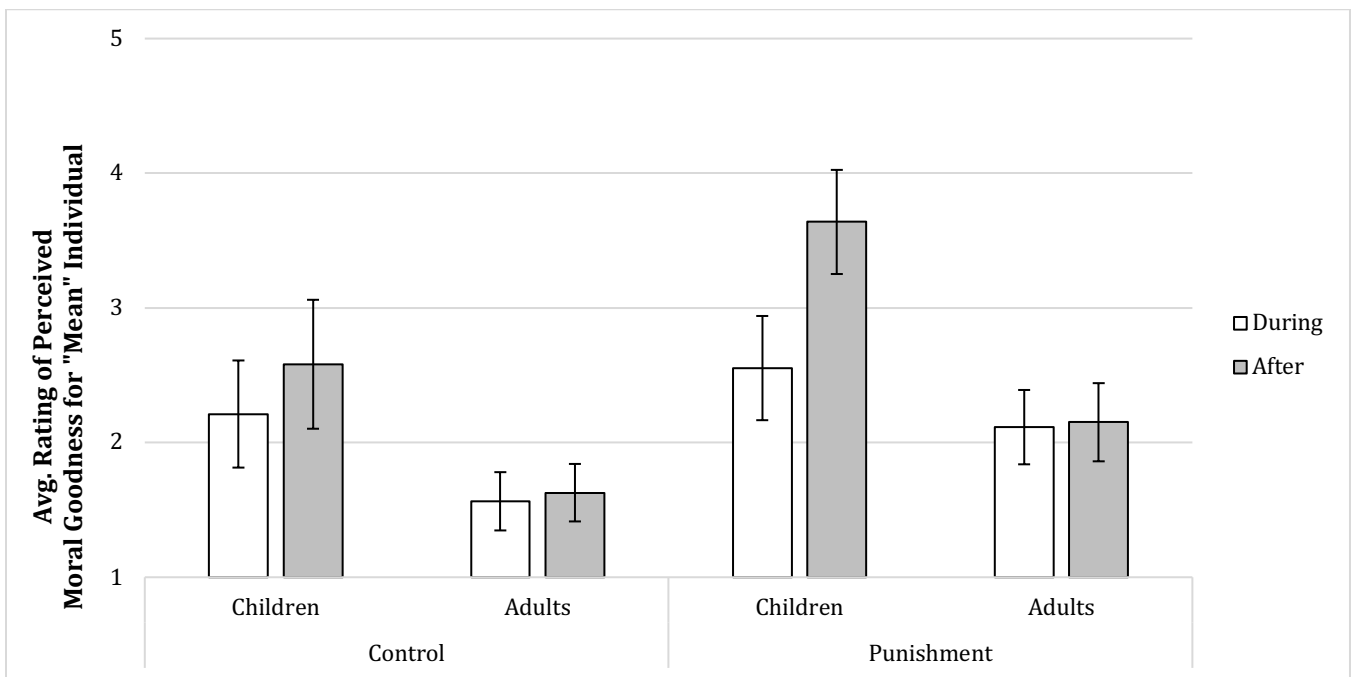


Figure S4.2. Average ratings of moral goodness, Study 1. Higher values indicate greater optimism about “mean” individuals’ moral character. Error bars represent 95% confidence intervals.

Study 1: Evaluations of “Religious” and “Atheistic” Individuals (Analyses Using Raw Means)

Evaluations of “religious” individuals. In addition to analyzing the data using difference scores, we conducted additional analyses using responses to items measuring perceived religiosity during and, separately, after going to jail or on business trip. Namely, we conducted a 2 (Participant Age: child vs. adult) x 2 (Condition: punishment vs. control) x 2 (Time: during vs. after) mixed ANOVA with repeated measures on the third factor. This analysis revealed a main effect of Participant Age ($F(1, 183)=64.06, p<.001, \eta_p^2=.26$). This main effect was qualified by a Participant Age x Time ($F(1, 183)=7.47, p=.007, \eta_p^2=.04$) and a Participant Age x Condition x Time interaction ($F(1, 183)=4.00, p=.047, \eta_p^2=.02$). No other main effects or interactions reached significance ($ps \geq .171$).

To better understand the three-way interaction, we analyzed the Condition x Time interaction among children and, separately, adults. When doing so, we found a Condition x Time interaction among children ($F(1, 92)=5.32, p=.023, \eta_p^2=.06$). To further probe this interaction, we examined the extent to which children reported that individuals’ qualities changed from baseline in the punishment and, separately, the business trip condition. This analysis included two comparisons; therefore, p values needed to be .025 or lower to pass the Bonferroni-corrected significance threshold. The sample size of children allowed for detection of an effect of size Cohen’s $|d|=.41$ in the punishment condition and .42 in the business trip condition. Children reported that “religious” individuals became more religious following punishment; however, this effect dropped to non-significance after applying the Bonferroni correction ($p=.037$, Cohen’s $d=.31$, 95% CI_{diff} : [-.41, -.01]). A significant effect did not emerge in the business trip condition ($p=.320$, Cohen’s $d=.15$, 95% CI_{diff} : [-.08, .23]). For adults, in contrast, the Condition x Time interaction did not reach significance ($p=.646$).

Evaluations of “atheistic” individuals. In addition to analyzing the data using difference scores, we conducted additional analyses using responses to items measuring perceived religiosity

during and, separately, after going to jail or the business trip. Namely, we conducted a 2 (Participant Age: child vs. adult) x 2 (Condition: punishment vs. control) x 2 (Time: during vs. after) mixed ANOVA with repeated measures on the third factor. This analysis revealed main effects of Participant Age ($F(1, 182)=65.00, p<.001, \eta_p^2=.26$), Condition ($F(1, 182)=10.90, p=.001, \eta_p^2=.06$), and Time ($F(1, 182)=62.32, p<.001, \eta_p^2=.26$). These main effects were qualified by a Participant Age x Time interaction ($F(1, 182)=25.94, p<.001, \eta_p^2=.13$), by a Condition x Time interaction ($F(1, 182)=13.20, p<.001, \eta_p^2=.07$), and by a Participant Age x Condition x Time interaction ($F(1, 182)=11.14, p=.001, \eta_p^2=.06$). The Participant Age x Condition interaction did not reach significance ($p=.277$).

To better understand the three-way interaction, we analyzed the Condition x Time interaction among children and, separately, adults. When doing so, we found a Condition x Time interaction among children ($F(1, 91)=15.06, p<.001, \eta_p^2=.14$). To further probe this interaction, we examined the extent to which children reported that “atheistic” individuals’ qualities changed from baseline in the punishment and, separately, the business trip condition. This analysis included two comparisons; therefore, p values needed to be .025 or lower to pass the Bonferroni-corrected significance threshold. The sample size of children allowed for detection of an effect of size Cohen’s $|d|=.42$ in both conditions. Children indicated that “atheistic” individuals became more religious as a result of punishment ($p<.001, \text{Cohen’s } d=1.06, 95\% \text{ CI}_{\text{diff}}: [.73, 1.22]$). This effect also emerged in the business trip condition ($p=.012, \text{Cohen’s } d=.39, 95\% \text{ CI}_{\text{diff}}: [.05, .54]$). However, this effect size was smaller than the smallest effect size that could be detected given the present samples. As such, caution is warranted in interpreting this result. For adults, in contrast, the Condition x Time interaction did not reach significance ($p=.738$).

Study 1: Descriptive Statistics for Each Item (Raw Means)

Table S4.5

Descriptive Statistics for Item Measuring Moral Goodness in the Punishment Condition Among Children, Study 1 (1= least positive moral character; 5= most positive moral character)

Characteristic Type	During Punishment Mean	During Punishment Standard Deviation	After Punishment Mean	After Punishment Standard Deviation	N
Nice	4.46	.81	4.64	.68	48
Mean	2.55	1.35	3.64	1.35	47

Table S4.6

Descriptive Statistics for Item Measuring Moral Goodness in the Punishment Condition Among Adults, Study 1 (1= least positive moral character; 5= most positive moral character)

Characteristic Type	During Punishment Mean	During Punishment Standard Deviation	After Punishment Mean	After Punishment Standard Deviation	N
Nice	3.38	1.22	3.11	1.13	48
Mean	2.11	.98	2.15	1.03	48

Table S4.7

Descriptive Statistics for Item Measuring Religiosity in the Punishment Condition Among Children, Study 1 (1= least religious; 5= most religious)

Characteristic Type	During Punishment Mean	During Punishment Standard Deviation	After Punishment Mean	After Punishment Standard Deviation	N
Religious	4.37	.96	4.58	.77	48
Atheistic	2.81	1.14	3.78	1.11	47

Table S4.8

Descriptive Statistics for Item Measuring Religiosity in the Punishment Condition Among Adults, Study 1 (1= least religious; 5= most religious)

Characteristic Type	During Punishment Mean	During Punishment Standard Deviation	After Punishment Mean	After Punishment Standard Deviation	N
Religious	3.56	1.17	3.36	1.21	48
Atheistic	1.82	.86	1.97	1.01	48

Table S9

Descriptive Statistics for Item Measuring Moral Goodness in the Business Trip Condition Among Children, Study 1 (1= least positive moral character; 5= most positive moral character)

Characteristic Type	During Business Trip Mean	During Business Trip Standard Deviation	After Business Trip Mean	After Business Trip Standard Deviation	N
Nice	4.62	.71	4.48	.95	46
Mean	2.21	1.38	2.58	1.66	46

Table S10

Descriptive Statistics for Item Measuring Moral Goodness in the Business Trip Condition Among Adults, Study 1 (1= least positive moral character; 5= most positive moral character)

Characteristic Type	During Business Trip Mean	During Business Trip Standard Deviation	After Business Trip Mean	After Business Trip Standard Deviation	N
Nice	3.45	1.31	3.48	1.34	45
Mean	1.56	.72	1.62	.70	43

Table S4.11

Descriptive Statistics for Item Measuring Religiosity in the Business Trip Condition Among Children, Study 1 (1= least religious; 5= most religious)

Characteristic Type	During Business Trip Mean	During Business Trip Standard Deviation	After Business Trip Mean	After Business Trip Standard Deviation	N
Religious	4.66	.58	4.59	.76	46
Atheistic	2.48	1.37	2.77	1.54	46

Table S4.12

Descriptive Statistics for Item Measuring Religiosity in the Business Trip Condition Among Adults, Study 1 (1= least religious; 5= most religious)

Characteristic Type	During Business Trip Mean	During Business Trip Standard Deviation	After Business Trip Mean	After Business Trip Standard Deviation	N
Religious	3.43	1.21	3.29	1.24	45
Atheistic	1.50	.62	1.62	.78	45

Study 1: Analyses Comparing Baseline Ratings Across Age Groups Within Each

Condition

In the Main Text, we reported results suggesting that children—but not adults—view “mean” individuals as becoming “nicer” after one severe form of punishment (incarceration). One interpretation of this result is that viewing punishment as redemptive wanes over development. However, an alternative explanation is that children’s baseline scores were lower than those of adults and their post-punishment scores increased by virtue of “regression to the mean.” If children reported less positive views of moral character than adults at baseline, such a finding could indicate that the age-related differences reported in Study 1 in the Main Text could be attributable to idiosyncrasies in measurement. However, if children reported either non-significantly different or more positive views of moral character than adults at baseline, such a finding would indicate that the age-related differences reported in Study 1 in the Main Text are likely not attributable to a “regression to the mean” effect.

To test between these possibilities, we conducted a series of independent-samples *t* tests to examine whether children’s and adults’ baseline measures of moral goodness differed for “mean” and, separately, “nice” individuals in the punishment condition. For completeness, we also conducted these analyses in the business trip condition. This approach resulted in a total of four tests. Therefore, *p* values needed to be .013 or lower to pass the Bonferroni-corrected significance threshold. Children reported higher baseline perceptions of moral goodness for “mean” individuals in the business trip condition than did adults ($t(69.09)=2.81, p=.007$, Cohen’s $d=.58$, 95% CI_{diff} : [.19, 1.11]); a significant effect did not emerge in the punishment condition ($t(83.56)=1.81, p=.074$, Cohen’s $d=.37$, 95% CI_{diff} : [-.04, .92]). Moreover, children reported higher baseline perceptions of moral goodness for “nice” individuals than did adults. This pattern emerged in both the punishment condition ($t(81.97)=5.16, p<.001$, Cohen’s $d=1.05$, 95% CI_{diff} : [.67, 1.51]) and the business trip condition ($t(67.41)=5.28, p<.001$, Cohen’s $d=1.11$, 95% CI_{diff} : [.73, 1.61]). In sum, across all conditions, children did not report lower

baseline measures than adults. These findings suggest that the age-related differences reported in Study 1 in the Main Text are likely not attributable to a “regression to the mean” effect.

Study 2: Analyses Comparing Responses Of Participants Who Reported Knowing At Least One Incarcerated Person With Responses of Participants Who Did Not

We conducted a series of independent-samples t tests to examine whether knowing an incarcerated person predicted perceived change scores for “mean” and, separately, “nice” individuals in the jail condition and, separately, the time-out condition. This approach resulted in a total of four analyses. Therefore, p values needed to be .013 or lower to pass the Bonferroni-corrected significance threshold. No significant differences in responses emerged between those who knew an incarcerated person and those who did not. This non-significant pattern of results emerged in both the jail condition (“nice” individuals: $t(70)=.73$, $p=.466$, Cohen’s $d=.26$, 95% CI_{diff} : [-.44, .94]; “mean” individuals: $t(71)=.90$, $p=.372$, Cohen’s $d=.32$, 95% CI_{diff} : [-.78, 2.06]) and the time-out condition (“nice” individuals: $t(70)=.28$, $p=.784$, Cohen’s $d=.10$, 95% CI_{diff} : [-.69, .91]; “mean” individuals: $t(71)=.52$, $p=.604$, Cohen’s $d=.19$, 95% CI_{diff} : [-1.10, 1.87]). Thus, we did not find strong evidence that knowing at least one incarcerated person predicted participants’ responses.

Study 2: Analyses Comparing Responses Of White and Non-White Participants

We conducted a series of independent-samples t tests to examine whether participant race (White vs. non-White) predicted perceived change scores for “mean” and, separately, “nice” individuals in the jail condition and, separately, the time-out condition. This approach resulted in a total of four analyses. Therefore, p values needed to be .013 or lower to pass the Bonferroni-corrected significance threshold. No significant differences in responses emerged between White participants and non-White participants in the jail condition (“nice” individuals: $t(66)=1.48$, $p=.145$, Cohen’s $d=.41$, 95% CI_{diff} : [-.93, .14]; “mean” individuals: $t(67)=.30$, $p=.763$, Cohen’s $d=.08$, 95% CI_{diff} : [-.95, 1.29]) and the time-out condition (“nice” individuals: $t(66)=-.07$, $p=.944$, Cohen’s $d=.02$, 95% CI_{diff} : [-.67, .62]; “mean” individuals: $t(67)=.31$, $p=.760$, Cohen’s $d=.08$, 95% CI_{diff} : [-.97, 1.32]). Thus, we did not find strong evidence that racial group membership predicted participants’ responses.

Study 2: Analyses Comparing Responses Of Hispanic/Latinx and Non-Hispanic/Latinx

Participants

We conducted a series of independent-samples t tests to examine whether participant ethnicity (Hispanic/Latinx vs. non-Hispanic/Latinx) predicted perceived change scores for “mean” and, separately, “nice” individuals in the jail condition and, separately, the time-out condition. This approach resulted in a total of four analyses. Therefore, p values needed to be .013 or lower to pass the Bonferroni-corrected significance threshold. No significant differences in responses emerged between Hispanic/Latinx participants and non-Hispanic/Latinx participants in the jail condition (“nice” individuals: $t(61)=.43$, $p=.586$, Cohen’s $d=.16$, 95% CI_{diff}: [-.41, .73]; “mean” individuals: $t(63)=-1.08$, $p=.285$, Cohen’s $d=.30$, 95% CI_{diff}: [-1.77, .53]) and the time-out condition (“nice” individuals: $t(60)=.49$, $p=.808$, Cohen’s $d=.07$, 95% CI_{diff}: [-.56, .72]; “mean” individuals: $t(63)=-.21$, $p=.837$, Cohen’s $d=.06$, 95% CI_{diff}: [-1.35, 1.10]). Thus, we did not find strong evidence that reported ethnic group membership predicted participants’ responses.

Study 2: Example Coding Sheet

The document below is one example of a coding sheet for Study 2. Study 2 contained three additional coding sheets. The following items were counterbalanced across participants in Study 2: the order in which individuals within a pair were introduced, the order in which participants learned about the “nice” and “mean” pairs of individuals, the order of experimental items (e.g., questions about whether an individual is morally good), the placement of individuals within each trial (e.g., the individual who went to jail was sometimes on the left side of the screen and sometimes on the right side).

INTRO:

In this game, I’m going to show you some pictures on my computer screen and tell you about the people in the pictures. After I show you these pictures, I’m going to be asking you some things about these people.

VIGNETTE 1: MEANNESS

[click screen to start]

Here are two people—Frank and Bobby [point to each character]. Frank and Bobby like to start fights with other people. They are both very mean. In Frank’s and Bobby’s neighborhood, there is a “Helping Room” [click]. See the “Helping Room” right here? [point to Helping Room] In the “Helping Room”, people in the neighborhood can spend time helping other people who need it.

Can you remind me, what do Frank and Bobby like to do? Do they like to be kind to people, or do they like to be mean to people? (**CIRCLE ONE**)

“BE MEAN TO PEOPLE” → That is right! [Move to the next question]

“BE KIND TO PEOPLE” → Actually, Frank and Bobby like to be mean to people.

Do you agree that... [point to Frank each time]

- Frank wants to go to the “Helping Room” in his neighborhood. Y or N? (Circle one)
 - How sure are you? Are you very sure, kind of sure, or not very sure? (Circle one)
- Frank *wants to* help people in his neighborhood. Y or N? (Circle one)
 - How sure are you? Are you very sure, kind of sure, or not very sure? (Circle one)
- Now, Frank is a good person deep, deep down inside. Y or N? (Circle one)
 - How sure are you? Are you very sure, kind of sure, or not very sure? (Circle one)
- Now, Frank is kind to others. Y or N? (Circle one)
 - How sure are you? Are you very sure, kind of sure, or not very sure? (Circle one)

Do you agree that... [point to Bobby each time]

- Bobby wants to go to the “Helping Room” in his neighborhood. Y or N? (Circle one)
 - How sure are you? Are you very sure, kind of sure, or not very sure? (Circle one)
- Bobby *wants to* help people in his neighborhood. Y or N? (Circle one)
 - How sure are you? Are you very sure, kind of sure, or not very sure? (Circle one)
- Now, Bobby is a good person deep, deep down inside. Y or N? (Circle one)

- How sure are you? Are you very sure, kind of sure, or not very sure? (Circle one)
- Now, Bobby is kind to others. Y or N? (Circle one)
 - How sure are you? Are you very sure, kind of sure, or not very sure? (Circle one)

One day, Frank and Bobby BOTH broke the law [point to Frank and Bobby]. They did the exact same thing. Because they broke the law, Frank and Bobby were punished. Where Frank and Bobby live, people can be punished in two ways. Some people are punished by being sent to TIME-OUT HOUSE, and other people are punished by being sent to a JAIL.

For his punishment [point to Frank], Frank was taken to a TIME-OUT HOUSE. The TIME-OUT HOUSE is very far from Frank's neighborhood. See Frank in the TIME-OUT HOUSE here? [point to screen] While he was in the TIME-OUT HOUSE, people SOMETIMES told Frank what to do, but other times, Frank could CHOOSE what he wanted to do. Other people decided how much time Frank had to spend in the TIME-OUT HOUSE before he could go home, but Frank was allowed to take walks away from the TIME-OUT HOUSE [click], as long as he came back when he was supposed to [click].

[click to change slide] For his punishment [point to Bobby], Bobby was taken to a JAIL [click]. The JAIL is very far from Bobby's neighborhood. See Bobby in the JAIL here? [point to Bobby] While he was in the JAIL, people ALWAYS told Bobby what to do. Bobby could NEVER choose what he did. Other people decided how much time Bobby had to spend in the JAIL before he could go home, and he was NOT allowed to leave until all that time was done.

Can you remind me, where was Frank taken? [point to Frank in TIME-OUT HOUSE] Was he taken to a JAIL, or was he taken to the TIME-OUT HOUSE? (**CIRCLE ONE**)

“TIME-OUT HOUSE” → That is right! Move to next part of the story.

“JAIL” → Actually, Frank was taken to the TIME-OUT HOUSE. [point to Frank in TIME-OUT HOUSE]

Do you agree that...

- Going to the TIME-OUT HOUSE is the worst punishment Frank could have gotten. Y or N? (Circle one)
 - How sure are you? Are you very sure / kind of sure / not very sure? (Circle one)
- Going to the TIME-OUT HOUSE is a big punishment for Frank. Y or N? (Circle one)
 - How sure are you? Are you very sure / kind of sure / not very sure? (Circle one)
- Bad things will happen to Frank in the TIME-OUT HOUSE. Y or N? (Circle one)
 - How sure are you? Are you very sure / kind of sure / not very sure? (Circle one)
- Frank will have a bad time in the TIME-OUT HOUSE. Y or N? (Circle one)
 - How sure are you? Are you very sure / kind of sure / not very sure? (Circle one)

Frank stays in TIME-OUT HOUSE for a really, really long time. Eventually, Frank finishes all the time that he needed to spend in TIME-OUT HOUSE, and he is allowed to go back home [click]. See, this is a picture of Frank at home [point to screen]. After Frank leaves TIME-OUT HOUSE, he remembers there is a “Helping Room” in his neighborhood [click; point to Helping Room]. At the

“Helping Room”, the people who live in Frank’s neighborhood can spend time helping other people who need it.

Do you agree that...

- Frank does not want to live in the TIME-OUT HOUSE again. Y or N? (Circle one)
 - How sure are you? Are you very sure / kind of sure / not very sure? (Circle one)
- After Frank leaves the TIME-OUT HOUSE, he never wants to go back and visit. Y or N? (Circle one)
 - How sure are you? Are you very sure / kind of sure / not very sure? (Circle one)
- Frank never wants to go back to the TIME-OUT HOUSE. Y or N? (Circle one)
 - How sure are you? Are you very sure / kind of sure / not very sure? (Circle one)
- Frank wants to stay out of the TIME-OUT HOUSE in the future. Y or N? (Circle one)
 - How sure are you? Are you very sure / kind of sure / not very sure? (Circle one)
- After going to TIME-OUT HOUSE, Frank wants to go to the “Helping Room” in his neighborhood. Y or N? (Circle one)
 - How sure are you? Are you very sure / kind of sure / not very sure? (Circle one)
- After going to TIME-OUT HOUSE, Frank *wants to* help people in his neighborhood. Y or N? (Circle one)
 - How sure are you? Are you very sure / kind of sure / not very sure? (Circle one)
- After going to TIME-OUT HOUSE, Frank is a good person deep, deep down inside. Y or N? (Circle one)
 - How sure are you? Are you very sure / kind of sure / not very sure? (Circle one)
- After going to TIME-OUT HOUSE, Frank is kind to others. Y or N? (Circle one)
 - How sure are you? Are you very sure / kind of sure / not very sure? (Circle one)

Okay, so now I am going to tell you the rest of the story about Bobby [click; point to picture of Bobby in the JAIL]. Can you remind me, where was Bobby taken? Was he taken to a JAIL, or was he taken to TIME-OUT HOUSE? (**CIRCLE ONE**)

“JAIL” → That is right! Move to next part of the story.

“IN TIME-OUT HOUSE” → Actually, Bobby was taken to the JAIL. [point to Bobby in JAIL

So remember, while he was in the JAIL, people ALWAYS told Bobby what to do. Bobby could NEVER choose what he did. Other people decided how much time Bobby had to spend in the JAIL before he could go home, and he was NOT allowed to leave until all that time was done.

Do you agree that...

- Going to the JAIL is the worst punishment Bobby could have gotten. Y or N? (Circle one)
 - How sure are you? Are you very sure / kind of sure / not very sure? (Circle one)
- Going to the JAIL is a big punishment for Bobby. Y or N? (Circle one)

- How sure are you? Are you very sure / kind of sure / not very sure? (Circle one)
- Bad things will happen to Bobby in the JAIL. Y or N? (Circle one)
 - How sure are you? Are you very sure / kind of sure / not very sure? (Circle one)
- Bobby will have a bad time in the JAIL. Y or N? (Circle one)
 - How sure are you? Are you very sure / kind of sure / not very sure? (Circle one)

Bobby stays in the JAIL for a really, really long time. Eventually, Bobby finishes all the time that he needed to spend in the JAIL, and he is allowed to go back home [click]. See, this is a picture of Bobby at home [point to screen]. After Bobby leaves the JAIL, he remembers there is a “Helping Room” in his neighborhood [click; point to Helping Room]. At the “Helping Room”, the people who live in Bobby’s neighborhood can spend time helping other people who need it.

Do you agree that...

- Bobby does not want to live in the JAIL again. Y or N? (Circle one)
 - How sure are you? Are you very sure, kind of sure, or not very sure? (Circle one)
- After Bobby leaves the JAIL, he never wants to go back and visit. Y or N? (Circle one)
 - How sure are you? Are you very sure, kind of sure, or not very sure? (Circle one)
- Bobby never wants to go back to the JAIL. Y or N? (Circle one)
 - How sure are you? Are you very sure, kind of sure, or not very sure? (Circle one)
- Bobby wants to stay out of the JAIL in the future. Y or N? (Circle one)
 - How sure are you? Are you very sure, kind of sure, or not very sure? (Circle one)
- After going to the JAIL, Bobby wants to go to the “Helping Room” in his neighborhood. Y or N? (Circle one)
 - How sure are you? Are you very sure / kind of sure / not very sure? (Circle one)
- After going to JAIL, Bobby *wants to* help people in his neighborhood. Y or N? (Circle one)
 - How sure are you? Are you very sure / kind of sure / not very sure? (Circle one)
- After going to JAIL, Bobby is a good person deep, deep down inside. Y or N? (Circle one)
 - How sure are you? Are you very sure / kind of sure / not very sure? (Circle one)
- After going to JAIL, Bobby is kind to others. Y or N? (Circle one)
 - How sure are you? Are you very sure / kind of sure / not very sure? (Circle one)

VIGNETTE 2: KINDNESS

[click to start]

Here are two people—Seth and Drew [point to each character]. Seth and Drew like to help others. They are both very kind. In Seth’s and Drew’s neighborhood, there is a “Helping Room” [click]. See the “Helping Room” right here? [point to Helping Room]. In the “Helping Room”, people in the neighborhood can spend time helping other people who need it.

Can you remind me, what do Seth and Drew like to do? Do they like to be kind to people, or do they like to be mean to people? (**CIRCLE ONE**)

“BE KIND TO PEOPLE” → That is right! [Move to the next question.]

“BE MEAN TO PEOPLE” → Actually, Seth and Drew like to be kind to people.

Do you agree that...[point to Seth each time]

- Seth wants to go to the “Helping Room” in his neighborhood. Y or N? (Circle one)
 - How sure are you? Are you very sure, kind of sure, or not very sure? (Circle one)

- Seth *wants to* help people in his neighborhood. Y or N? (Circle one)
 - How sure are you? Are you very sure, kind of sure, or not very sure? (Circle one)
- Now, Seth is a good person deep, deep down inside. Y or N? (Circle one)
 - How sure are you? Are you very sure, kind of sure, or not very sure? (Circle one)

- Now, Seth is kind to others. Y or N? (Circle one)
 - How sure are you? Are you very sure, kind of sure, or not very sure? (Circle one)

Do you agree that...[point to Drew each time]

- Drew wants to go to the “Helping Room” in his neighborhood. Y or N? (Circle one)
 - How sure are you? Are you very sure, kind of sure, or not very sure? (Circle one)

- Drew *wants to* help people in his neighborhood. Y or N? (Circle one)
 - How sure are you? Are you very sure, kind of sure, or not very sure? (Circle one)

- Now, Drew is a good person deep, deep down inside. Y or N? (Circle one)
 - How sure are you? Are you very sure, kind of sure, or not very sure? (Circle one)

- Now, Drew is kind to others. Y or N? (Circle one)
 - How sure are you? Are you very sure, kind of sure, or not very sure? (Circle one)

One day, Seth and Drew BOTH broke the law [point to both Seth and Drew]. They did the exact same thing. Because they broke the law, Seth and Drew were punished. Where Seth and Drew live, people can be punished in two ways. Some people are punished by being sent to TIME-OUT HOUSE, and other people are punished by being sent to a JAIL.

For his punishment [point to Seth], Seth was taken to a TIME-OUT HOUSE. The TIME-OUT HOUSE is very far from Seth ‘s neighborhood. See Seth in the TIME-OUT HOUSE here? While he was in the TIME-OUT HOUSE, people sometimes told Seth what to do, but other times, Seth could choose what he wanted to do. Other people decided how much time Seth had to spend in the TIME-OUT HOUSE before he could go home, but Seth was allowed to take walks away from the TIME-OUT HOUSE [click], as long as he came back when he was supposed to [click].

[click to change slide] For his punishment [click; point to Drew], Drew was taken to a JAIL [click]. The JAIL is very far from Drew ‘s neighborhood. See Drew in the JAIL here? [point to Drew] While he was in the JAIL, people always told Drew what to do. Drew could never choose what he did. Other

people decided how much time Drew had to spend in the JAIL before he could go home, and he was not allowed to leave until all that time was done.

Can you remind me, where was Seth taken? [point to Seth in TIME-OUT HOUSE] Was he taken to a JAIL, or was he taken to the TIME-OUT HOUSE? (**CIRCLE ONE**)

“TIME-OUT HOUSE” → That is right! Move to next part of the story.

“JAIL” → Actually, Seth was taken to the TIME-OUT HOUSE. [point to Seth in TIME- OUT HOUSE]

Do you agree that...

- Going to the TIME-OUT HOUSE is the worst punishment Seth could have gotten. Y or N? (Circle one)
 - How sure are you? Are you very sure, kind of sure, or not very sure? (Circle one)
- Going to the TIME-OUT HOUSE is a big punishment for Seth. Y or N? (Circle one)
 - How sure are you? Are you very sure, kind of sure, or not very sure? (Circle one)
- Bad things will happen to Seth in the TIME-OUT HOUSE. Y or N? (Circle one)
 - How sure are you? Are you very sure, kind of sure, or not very sure? (Circle one)
- Seth will have a bad time in the TIME-OUT HOUSE. Y or N? (Circle one)
 - How sure are you? Are you very sure, kind of sure, or not very sure? (Circle one)

Okay, so now I am going to tell you the rest of the story about Seth. Seth stays in TIME-OUT HOUSE for a really, really long time. Eventually, Seth finishes all the time that he needed to spend in TIME-OUT HOUSE, and he is allowed to go back home [click]. See, this is a picture of Seth at home [point to screen]. After Seth leaves TIME-OUT HOUSE, he remembers there is a “Helping Room” in his neighborhood [click; point to Helping Room]. At the “Helping Room”, the people who live in Seth’s neighborhood can spend time helping other people who need it.

Do you agree that...

- Seth does not want to live in the TIME-OUT HOUSE again. Y or N? (Circle one)
 - How sure are you? Are you very sure, kind of sure, or not very sure? (Circle one)
- After Seth leaves the TIME-OUT HOUSE, he never wants to go back and visit. Y or N? (Circle one)
 - How sure are you? Are you very sure, kind of sure, or not very sure? (Circle one)
- Seth never wants to go back to the TIME-OUT HOUSE. Y or N? (Circle one)
 - How sure are you? Are you very sure, kind of sure, or not very sure? (Circle one)
- Seth wants to stay out of the TIME-OUT HOUSE in the future. Y or N? (Circle one)
 - How sure are you? Are you very sure, kind of sure, or not very sure? (Circle one)
- After going to TIME-OUT HOUSE, Seth wants to go to the “Helping Room” in his neighborhood. Y or N? (Circle one)
 - How sure are you? Are you very sure, kind of sure, or not very sure? (Circle one)

- After going to TIME-OUT HOUSE, Seth *wants to* help people in his neighborhood. Y or N? (Circle one)
 - How sure are you? Are you very sure, kind of sure, or not very sure? (Circle one)
- After going to TIME-OUT HOUSE, Seth is a good person deep, deep down inside. Y or N? (Circle one)
 - How sure are you? Are you very sure, kind of sure, or not very sure? (Circle one)
- After going to TIME-OUT HOUSE, Seth is kind to others. Y or N? (Circle one)
 - How sure are you? Are you very sure, kind of sure, or not very sure? (Circle one)

Okay, so now I am going to tell you the rest of the story about Drew. [click; show picture of Drew in the JAIL]. Can you remind me, where was Drew taken? Was he taken to a JAIL, or was he taken to TIME-OUT HOUSE? (**CIRCLE ONE**)

“JAIL” → That is right! Move to next part of the story.

“IN TIME-OUT HOUSE” → Actually, Drew was taken to the JAIL. [point to Drew in TIME- OUT HOUSE]

So remember, while he was in the JAIL, people always told Drew what to do. Drew could never choose what he did. Other people decided how much time Drew had to spend in the JAIL before he could go home, and he was not allowed to leave until all that time was done.

Do you agree that...

- Going to the JAIL is the worst punishment Drew could have gotten. Y or N? (Circle one)
 - How sure are you? Are you very sure, kind of sure, or not very sure? (Circle one)
- Going to the JAIL is a big punishment for Drew. Y or N? (Circle one)
 - How sure are you? Are you very sure, kind of sure, or not very sure? (Circle one)
- Bad things will happen to Drew in the JAIL. Y or N? (Circle one)
 - How sure are you? Are you very sure, kind of sure, or not very sure? (Circle one)
- Drew will have a bad time in the JAIL. Y or N? (Circle one)
 - How sure are you? Are you very sure, kind of sure, or not very sure? (Circle one)

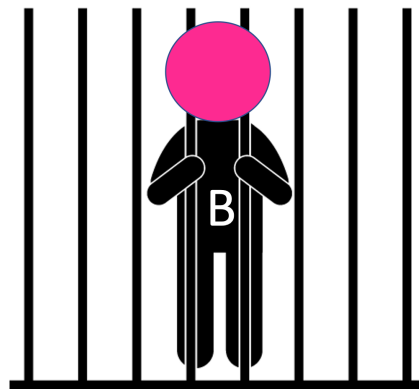
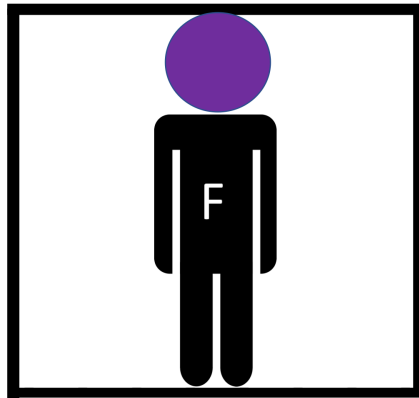
Drew stays in the JAIL for a really, really long time. Eventually, Drew finishes all the time that he needed to spend in the JAIL, and he is allowed to go back home. See, this is a picture of Drew at home [point to screen]. After Drew leaves the JAIL, he remembers there is a “Helping Room” in his neighborhood [click; point to Helping Room]. At the “Helping Room”, the people who live in Drew’s neighborhood can spend time helping other people who need it.

Do you agree that...

- Drew does not want to live in the JAIL again. Y or N? (Circle one)
 - How sure are you? Are you very sure, kind of sure, or not very sure? (Circle one)
- After Drew leaves the JAIL, he never wants to go back and visit. Y or N? (Circle one)

- How sure are you? Are you very sure, kind of sure, or not very sure? (Circle one)
- Drew never wants to go back to the JAIL. Y or N? (Circle one)
 - How sure are you? Are you very sure, kind of sure, or not very sure? (Circle one)
- Drew wants to stay out of the JAIL in the future. Y or N? (Circle one)
 - How sure are you? Are you very sure, kind of sure, or not very sure? (Circle one)
- After going to the JAIL, Drew wants to go to the “Helping Room” in his neighborhood. Y or N? (Circle one)
 - How sure are you? Are you very sure, kind of sure, or not very sure? (Circle one)
- After going to the JAIL, Drew *wants to* help people in his neighborhood. Y or N? (Circle one)
 - How sure are you? Are you very sure, kind of sure, or not very sure? (Circle one)
- After going to the JAIL, Drew is a good person deep, deep down inside. Y or N? (Circle one)
 - How sure are you? Are you very sure, kind of sure, or not very sure? (Circle one)
- After going to the JAIL, Drew is kind to others. Y or N? (Circle one)
 - How sure are you? Are you very sure, kind of sure, or not very sure? (Circle one)

Study 2: Example Stimuli



Study 2: Details Regarding Sensitivity Power Analyses And Bonferroni-Adjusted p -values For Perceived Severity Of Time-Out Versus Jail

In the Main Text, we used a series of paired-samples t -tests to compare punishment severity scores in the “nice” condition and, separately, the “mean” condition. This resulted in two comparisons; therefore, after applying a Bonferroni correction, p values needed to be .025 or lower to remain significant. A sensitivity analysis revealed that this analysis could detect an effect of size Cohen’s $|d|=.32$.

Study 2: Details Regarding Sensitivity Power Analyses And Bonferroni-Adjusted p -values For Evaluations Of “Nice” Individuals (Using Difference Scores)

In the Main Text, we investigated responses using two types of analyses. First, we examined the extent to which participants reported that “nice” individuals changed after each type of punishment. We did so by using a series of one-sample t -tests to compare perceived change scores to 0 in both conditions. This resulted in two comparisons; therefore, after applying a Bonferroni correction, p values needed to be .025 or lower to remain significant. The sample size of children allowed for detection of effects of size Cohen’s $|d|=.32$ across both conditions. Next, we conducted a paired-samples t -tests to compare the magnitude of perceived change across punishment conditions. We did so by comparing perceived change scores in the jail and time-out conditions. A sensitivity analysis revealed that this analysis could detect an effect of size Cohen’s $|d|=.32$.

Study 2: Details Regarding Sensitivity Power Analyses And Bonferroni-Adjusted p -values For Evaluations Of “Mean” Individuals (Using Difference Scores)

In the Main Text, we investigated participants responses using the same analyses as those described above for the “nice” individuals. This resulted in two comparisons; therefore, after applying a Bonferroni correction, p values needed to be .025 or lower to remain significant. The sample size of children allowed for detection of effects of size Cohen’s $|d|=.32$ across both conditions. Next, we

conducted a paired-samples *t*-tests to compare the magnitude of perceived change across punishment conditions. We did so by comparing perceived change scores in the jail and time-out conditions. A sensitivity analysis revealed that this analysis could detect an effect of size Cohen's $|d|=.32$.

Study 2: Evaluations of “Nice” and “Mean” Individuals (Analyses Using Raw Means)

Evaluations of “nice” individuals. In addition to analyzing the data using difference scores in the Main Text, we conducted additional analyses using participants responses to items measuring perceived moral character before and, separately, after jail or time-out (Figure S3). Namely, we conducted a 2 (Condition: time-out vs. jail) x 2 (Time: before vs. after) within-participants ANOVA. Neither the main effects nor the interaction reached significance ($ps \geq .142$).

Evaluations of “mean” individuals. In addition to analyzing the data using difference scores in the Main Text, we conducted additional analyses using participants responses to items measuring perceived moral character before and, separately, after jail or time-out (Figure S4). Namely, we conducted a 2 (Condition: time-out vs. jail) x 2 (Time: before vs. after) within-participants ANOVA. This analysis revealed a main effect of Time ($F(1, 71)=209.72, p<.001, \eta_p^2=.75$). Neither the main effect of Condition nor the Condition x Time interaction reached significance ($ps \geq .169$). Consistent with the results reported in the Main Text, participants reported that “mean” individuals became “nicer” following punishment. The non-significant interaction suggest that this pattern of results emerged regardless of whether the punishment was relatively minor (time-out) or relatively severe (jail).

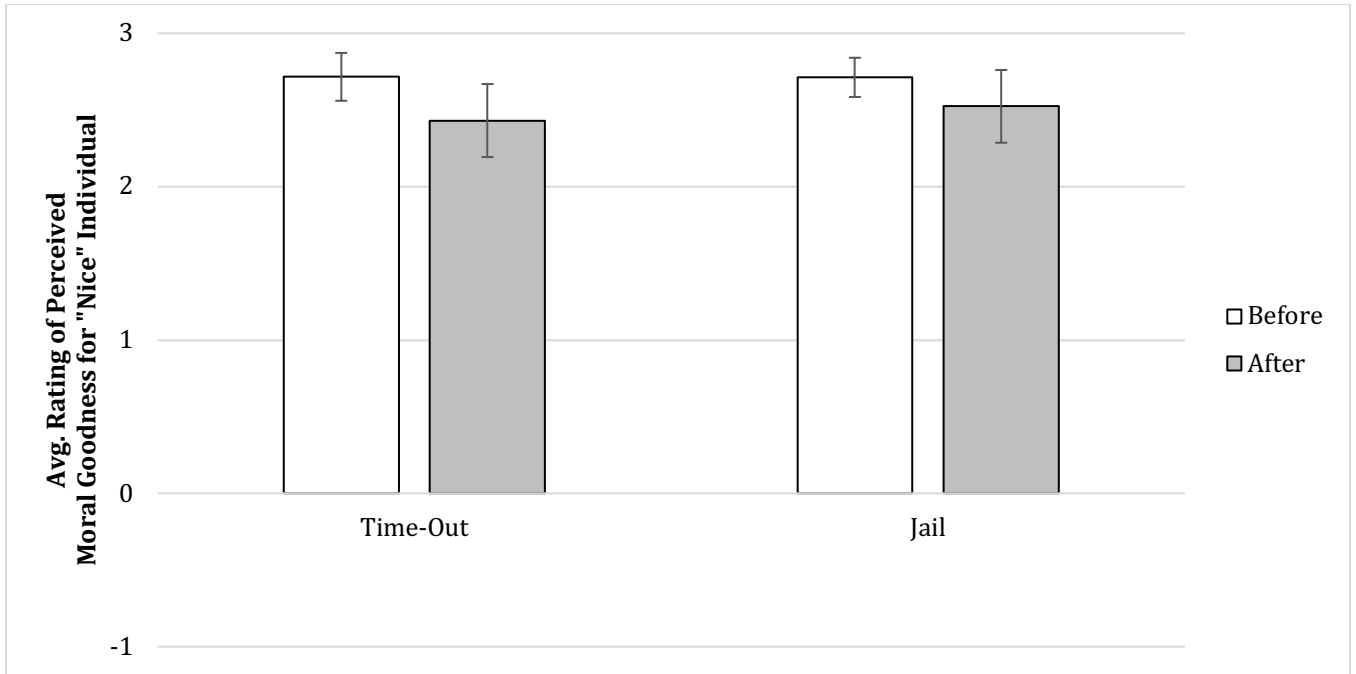


Figure S4.3. Average perceived moral goodness for “nice” individuals, Study 2. Greater positive values reflect greater agreement that the individual is morally good, whereas greater negative values reflect greater agreement that the individual is not morally good. Error bars represent 95% confidence intervals.

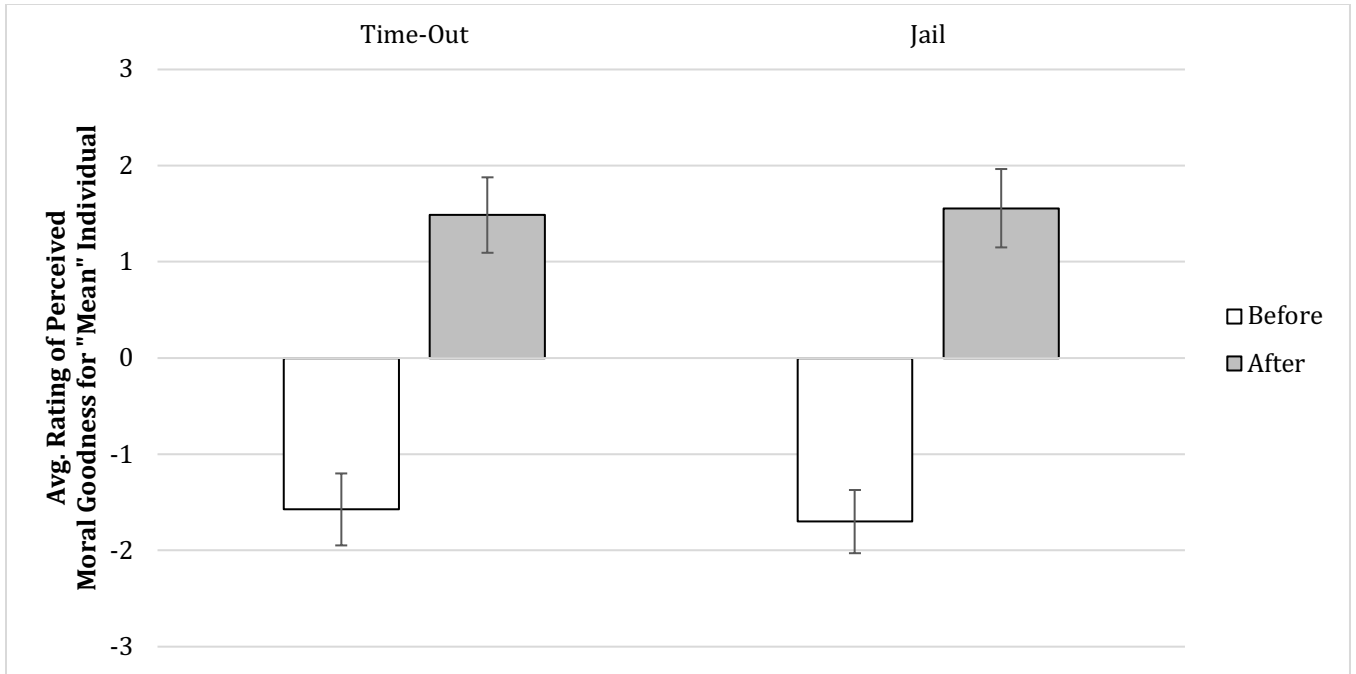


Figure S4.4. Average perceived change in moral goodness, Study 2. Greater positive values reflect greater agreement that the individual is morally good, whereas greater negative values reflect greater agreement that the individual is not morally good. Error bars represent 95% confidence intervals.

Study 2: Correlations Between Participants' Responses and Age

We correlated age with perceived change scores for “mean” and, separately, “nice” individuals in the jail condition. We also correlated age with perceived change scores for “mean” and, separately, “nice” individuals in the time-out condition. This approach resulted in a total of four analyses.

Therefore, p values needed to be .013 or lower to pass the Bonferroni-corrected significance threshold.

No comparisons reached significance ($|r| \leq .09$, $ps \geq .451$).

Study 2: Descriptive Statistics for Each Item (Difference Scores)

Table S4.13

Descriptive Statistics for Item Measuring Perceived Severity of Punishment in the Time-Out Condition, Study 2 (-3= least severe; +3=most severe)

Characteristic Type	Mean	Standard Deviation	N
Nice	-.82	1.69	75
Mean	-.89	1.87	75

Table S4.14

Descriptive Statistics for Item Measuring Perceived Change in the Jail Condition, Study 2 (-5= most negative change; +5=most positive change)

Characteristic Type	Mean	Standard Deviation	N
Nice	-.19	.96	74
Mean	3.26	1.99	75

Table S4.15

Descriptive Statistics for Item Measuring Perceived Change in the Time-Out Condition, Study 2 (-5= most negative change; +5=most positive change)

Characteristic Type	Mean	Standard Deviation	N
Nice	-.28	1.10	74
Mean	3.06	2.08	75

Study 2: Descriptive Statistics for Each Item (Raw Means)

Table S4.16

Descriptive Statistics for Item Measuring Perceived Severity of Punishment in the Jail Condition, Study 2 (-3= least severe; +3=most severe)

Characteristic Type	Mean	Standard Deviation	N
Nice	2.82	.33	75
Mean	2.85	.34	75

Table S4.17

Descriptive Statistics for Item Measuring Moral Goodness in the Jail Condition, Study 2 (-3= least optimism about individual's moral character; +3= most optimism about individual's moral character)

Characteristic Type	Before Jail Mean	Before Jail Standard Deviation	After Jail Mean	After Jail Standard Deviation	N
Nice	2.72	.56	2.52	1.04	74
Mean	-1.70	1.45	1.56	1.80	75

Table S4.18

Descriptive Statistics for Item Measuring Moral Goodness in the Time-Out Condition, Study 2 (-3= least optimism about individual's moral character; +3= most optimism about individual's moral character)

Characteristic Type	Before Time-Out Mean	Before Time-Out Standard Deviation	After Time-Out Mean	After Time-Out Standard Deviation	N
Nice	2.72	.68	2.43	1.04	74
Mean	-1.57	1.65	1.49	1.73	75

Appendix D: Supplementary Materials for Chapter 5

Study 1: Analyses Comparing Responses of Participants Who Reported Knowing At Least One Incarcerated Person With Responses of Participants Who Did Not

We conducted a series of independent-samples t tests to examine whether knowing an incarcerated person predicted average attribution scores for conventional and, separately, moral beliefs. This approach resulted in two analyses among 5- to 6-year-olds and, separately, two among 7- to 8-year-olds, for a total of four tests. Therefore, p values needed to be .013 or lower to pass the Bonferroni-corrected significance threshold. Among younger children, no significant differences in responses emerged between those who knew an incarcerated person and those who did not (conventional beliefs: $t(85)=-.28, p=.978$, Cohen's $d=-.01$, 95% CI_{diff} : [-1.14, 1.10]; moral beliefs: $t(85)=.19, p=.848$, Cohen's $d=.08$, 95% CI_{diff} : [-1.06, 1.29]). We found a similar non-significant pattern of results among older children (conventional beliefs: $t(66)=.06, p=.957$, Cohen's $d=.02$, 95% CI_{diff} : [-1.04, 1.10]; moral beliefs: $t(16.50)=1.97, p=.066$, Cohen's $d=.44$, 95% CI_{diff} : [-.04, 1.29]). Thus, we did not find strong evidence that knowing at least one incarcerated person predicted participants' responses to the belief attribution items.

Additionally, we conducted a series of independent-samples t tests to examine whether knowing an incarcerated person predicted participants' resource allocation decisions. This approach resulted in two analyses among 5- to 6-year-olds and, separately, two among 7- to 8-year-olds, for a total of four tests. Therefore, p values needed to be .013 or lower to pass the Bonferroni-corrected significance threshold. Among younger children, no significant differences in behavior emerged between those who knew an incarcerated person and those who did not (peer with incarcerated parent: $t(83)=.24, p=.814$, Cohen's $d=.09$, 95% CI_{diff} : [-1.18, 1.50]; peer whose parent was not incarcerated: $t(83)=-1.75, p=.084$, Cohen's $d=-.69$, 95% CI_{diff} : [-1.87, .12]). This non-significant pattern also emerged among older children (peer with incarcerated parent: $t(65)=-1.20, p=.236$, Cohen's $d=-.45$,

95% CI_{diff} : [-1.94, .49]; peer whose parent was not incarcerated: $t(65)=.27, p=.791$, Cohen's $d=.10$, 95% CI_{diff} : [-.71, .92]). Thus, we did not find strong evidence that knowing at least one incarcerated person predicted resource allocation decisions.

Study 1: Analyses Comparing Responses of White and Non-White Participants

We conducted a series of independent-samples t tests to examine the extent to which participant race (White vs. non-White) predicted average attribution scores for conventional and, separately, moral beliefs. This approach resulted in two analyses among 5- to 6-year-olds and, separately, two among 7- to 8-year-olds, for a total of four tests. Therefore, p values needed to be .013 or lower to pass the Bonferroni-corrected significance threshold. Among younger children, no significant differences in responses emerged between White and non-White individuals (conventional beliefs: $t(87)=-1.33, p=.187$, Cohen's $d=-.29$, 95% CI_{diff} : [-1.03, .20]; moral beliefs: $t(87)=-1.11, p=.271$, Cohen's $d=-.24$, 95% CI_{diff} : [-1.00, .29]). We found a similar non-significant pattern of results among older children (conventional beliefs: $t(63.32)=1.89, p=.064$, Cohen's $d=.43$, 95% CI_{diff} : [-.04, 1.23]; moral beliefs: $t(63.06)=1.66, p=.081$, Cohen's $d=.42$, 95% CI_{diff} : [-.07, 1.24]). Thus, we did not find strong evidence that participant racial group membership predicted participants' responses to the belief attribution items.

Additionally, we conducted a series of independent-samples t tests to examine whether participant race predicted participants' resource allocation decisions. This approach resulted in two analyses among 5- to 6-year-olds and, separately, two among 7- to 8-year-olds, for a total of four tests. Therefore, p values needed to be .013 or lower to pass the Bonferroni-corrected significance threshold. Among younger children, no significant differences in responses emerged between White and non-White individuals (parent not incarcerated: $t(85)=-.62, p=.536$, Cohen's $d=-.14$, 95% CI_{diff} : [-.73, .38]; parent incarcerated: $t(82.11)=-1.17, p=.246$, Cohen's $d=-.25$, 95% CI_{diff} : [-1.15, .30]). We found a similar non-significant pattern of results among older children (parent not incarcerated: $t(63)=-.33,$

$p=.740$, Cohen's $d=-.09$, 95% CI_{diff} : [-.63, .45]; parent incarcerated: $t(63)=.33$, $p=.741$, Cohen's $d=.09$, 95% CI_{diff} : [-.68, .95]). Thus, we did not find strong evidence that participant race predicted resource allocation decisions.

Study 1: Analyses Comparing Responses of Hispanic/Latinx and Non-Hispanic/Latinx

Participants

We conducted a series of independent-samples t tests to examine the extent to which participant ethnicity (Hispanic/Latinx vs. non-Hispanic/Latinx) predicted average attribution scores for conventional and, separately, moral beliefs. This approach resulted in two analyses among 5- to 6-year-olds and, separately, two among 7- to 8-year-olds, for a total of four tests. Therefore, p values needed to be .013 or lower to pass the Bonferroni-corrected significance threshold. Among younger children, no significant differences in responses emerged between Hispanic/Latinx and non-Hispanic/Latinx individuals (conventional beliefs: $t(86)=.10$, $p=.917$, Cohen's $d=.03$, 95% CI_{diff} : [-.71, .79]; moral beliefs: $t(86)=-.55$, $p=.586$, Cohen's $d=-.14$, 95% CI_{diff} : [-1.00, .57]). We found a similar non-significant pattern of results among older children (conventional beliefs: $t(62)=-1.11$, $p=.272$, Cohen's $d=-.34$, 95% CI_{diff} : [-1.34, .38]; moral beliefs: $t(62)=-.80$, $p=.425$, Cohen's $d=-.25$, 95% CI_{diff} : [-1.22, .52]). Thus, we did not find strong evidence that participant ethnicity predicted participants' responses to the belief attribution items.

Additionally, we conducted a series of independent-samples t tests to examine whether participant ethnicity predicted participants' resource allocation decisions. This approach resulted in two analyses among 5- to 6-year-olds and, separately, two among 7- to 8-year-olds, for a total of four tests. Therefore, p values needed to be .013 or lower to pass the Bonferroni-corrected significance threshold. Among younger children, no significant differences in responses emerged between Hispanic/Latinx and non-Hispanic/Latinx individuals (parent not incarcerated: $t(84)=-.79$, $p=.431$, Cohen's $d=-.21$, 95% CI_{diff} : [-.93, .40]; parent incarcerated: $t(40)=-.96$, $p=.342$, Cohen's $d=-.25$, 95% CI_{diff} : [-1.33,

.47]). We found a similar non-significant pattern of results among older children (parent not incarcerated: $t(61)=-.19, p=.848$, Cohen's $d=-.06$, 95% CI_{diff} : [-.68, .56]; parent incarcerated: $t(61)=-.46, p=.647$, Cohen's $d=-.14$, 95% CI_{diff} : [-1.26, .79]). Thus, we did not find strong evidence that participant ethnicity predicted resource allocation decisions.

Study 1: Relation Between Belief Attribution Scores and Number of Resources Shared

We conducted a series of bivariate correlations to examine the extent to which belief attribution scores predicted the number of resources children shared with peers whose parents were and, separately, were not incarcerated. We conducted this analysis for both conventional and moral belief attribution scores. This approach resulted in four analyses among 5- to 6-year-olds and, separately, four among 7- to 8-year-olds, for a total of eight tests. Therefore, p values needed to be .006 or lower to pass the Bonferroni-corrected significance threshold. One correlation reached significance among older children: the more certain older children were that parents were, versus were not, incarcerated possessed a conventional belief, the fewer resources they shared with peers whose parents were not incarcerated. However, this effect dropped to non-significance after applying the Bonferroni correction ($r=-.29, p=.015$). No other tests reached significance ($|r|s \leq .21, ps \geq .077$). Thus, we did not find strong evidence that participants' belief attribution scores predicted their resource allocation decisions.

Study 1: Materials (Example Coding Sheet)

The below document includes instructions and items presented to participants in Study 1. Participants completed one of four possible versions of this study. For brevity, we include only one version below. The only difference between the coding sheet presented below and the additional coding sheets is block order (the order in which participants learned about each character was counterbalanced across participants) and the order of experimental items within each block.

Subject number: _____ Birth Date: ____/____/____ Today's Date: ____/____/____

Ethnicity: Hispanic or Not Hispanic? Race: _____ Gender: M or F or O?

Recruitment/Interview Location: _____ CJS Involvement: Y or N?

Begin by going through the assent script. If child says he/she wants to do the study, continue with the questions below.

I'm going to ask you questions, like what you think about other kids. There aren't any right or wrong answers; I just want to know whatever you think.

BELIEF ATTRIBUTION TASK

Trial 1

See this person right here? [point to character on left side of screen] [He/She] was born to a mom who has never gone to jail. See [his/her] mom right here? And see this person right here? [point to character on right side of screen] [He/She] was born to a mom who is in jail right now. See [his/her] mom right here?

Can you point to the person whose mom is in jail right now? (CIRCLE PARTICIPANT'S ANSWER)

- A. Child WITH incarcerated parent
- B. Child WITHOUT incarcerated parent

If wrong: "Well, actually, this person's mom is in jail right now." [point to correct person].

So, do you remember whose mom is in jail right now?" CHILD WITH INCARCERATED PARENT

- A. Child WITH incarcerated parent
- B. Child WITHOUT incarcerated parent

One person here thinks that making another person cry on purpose is wrong.

- Can you point to the person who thinks that making another person cry on purpose is wrong?
 - A. Child WITH incarcerated parent
 - B. Child WITHOUT incarcerated parent
- Are you very sure, kind of sure, or not very sure about that?
 - A. Very sure
 - B. Kind of sure
 - C. Not very sure

Trial 2

See this person right here? [point to character on left side of screen] [He/She] was born to a mom who is in jail right now. See [his/her] mom right here? And see this person right here? [point to character on right side of screen] [He/She] was born to a mom who has never gone to jail. See [his/her] mom right here?

One person here thinks that pushing another person down on the playground is wrong.

- Can you point to the person who thinks that punishing another person down on the playground is wrong?
 - A. Child WITH incarcerated parent
 - B. Child WITHOUT incarcerated parent
- Are you very sure, kind of sure, or not very sure about that?
 - A. Very sure
 - B. Kind of sure
 - C. Not very sure

Trial 3

See this person right here? [point to character on left side of screen] [He/She] was born to a mom who has never gone to jail. See [his/her] mom right here? And see this person right here? [point to character on right side of screen] [He/She] was born to a mom who is in jail right now. See [his/her] mom right here?

One person here thinks that stealing another person's toy is wrong.

- Can you point to the person who thinks stealing another person's toy is wrong?
 - A. Child WITH incarcerated parent
 - B. Child WITHOUT incarcerated parent
- Are you very sure, kind of sure, or not very sure about that?
 - A. Very sure
 - B. Kind of sure
 - C. Not very sure

Trial 4

See this person right here? [point to character on left side of screen] [He/She] was born to a mom who is in jail right now. See [his/her] mom right here? And see this person right here? [point to character on right side of screen] [He/She] was born to a mom who has never gone to jail. See [his/her] mom right here?

One person here thinks that breaking the rules of a game is wrong.

- Can you point to the person who thinks that breaking the rules of a game is wrong?
 - A. Child WITH incarcerated parent

- B. Child WITHOUT incarcerated parent
- Are you very sure, kind of sure, or not very sure about that?
 - A. Very sure
 - B. Kind of sure
 - C. Not very sure

Trial 5

See this person right here? [point to character on left side of screen] [He/She] was born to a mom who has never gone to jail. See [his/her] mom right here? And see this person right here? [point to character on right side of screen] [He/She] was born to a mom who is in jail right now. See [his/her] mom right here?

One person here thinks that not saying “please” when asking for something is wrong.

- Can you point to the person who thinks that not saying “please” when asking for something is wrong?
 - A. Child WITH incarcerated parent
 - B. Child WITHOUT incarcerated parent
- Are you very sure, kind of sure, or not very sure about that?
 - A. Very sure
 - B. Kind of sure
 - C. Not very sure

Trial 6

See this person right here? [point to character on left side of screen] [He/She] was born to a mom who is in jail right now. See [his/her] mom right here? And see this person right here? [point to character on right side of screen] [He/She] was born to a mom who has never gone to jail. See [his/her] mom right here?

One person here thinks that talking in class without raising your hand is wrong.

- Can you point to the person who thinks that talking in class without raising your hand is wrong?
 - A. Child WITH incarcerated parent
 - B. Child WITHOUT incarcerated parent
- Are you very sure, kind of sure, or not very sure about that?
 - A. Very sure
 - B. Kind of sure
 - C. Not very sure

Trial 7

See this person right here? [point to character on left side of screen] [He/She] was born to a mom who has never gone to jail. See [his/her] mom right here? And see this person right here? [point to character on right side of screen] [He/She] was born to a mom who is in jail right now. See [his/her] mom right here?

One person here thinks that wearing pajamas to school is wrong.

- Can you point to the person who thinks that wearing pajamas to school is wrong?
 - A. Child with IP
 - B. Child without IP
- Are you very sure, kind of sure, or not very sure about that?
 - A. Very sure
 - B. Kind of sure
 - C. Not very sure

Trial 8

See this person right here? [point to character on left side of screen] [He/She] was born to a mom who is in jail right now. See [his/her] mom right here? And see this person right here? [point to character on right side of screen] [He/She] was born to a mom who has never gone to jail. See [his/her] mom right here?

One person here thinks that hitting another person is wrong.

- Can you point to the person who thinks that hitting another person is wrong?
 - A. Child WITH incarcerated parent
 - B. Child WITHOUT incarcerated parent
- Are you very sure, kind of sure, or not very sure about that?
 - A. Very sure
 - B. Kind of sure
 - C. Not very sure

SHARING TASK

Trial 1

See this person right here? [point to character on screen] [His/her] mom has never gone to jail. See [his/her] mom right here?

Now, here are some stickers. You can decide how many stickers you want to give the person I just told you about. You can give as many stickers as you want, but you cannot keep any for yourself. Any stickers you want to give to this person can go in this envelope. Any stickers that you do not want to give to this person can go in the trash envelope here, and I will throw them away when we finish. Does that make sense?

Can you remind me, is this person's mom is in jail right now, or not in jail right now? _____

(correct=1; incorrect=0)

- If they get it CORRECT the first time: "That's right" + move on to the next question
- If they get it INCORRECT: "Well, actually, this person's mom is in jail right now" [point to correct person]. Can you show me which person's mom is in jail right now? (correct=1; incorrect=0) _____

So remember, any stickers you want to give this person will go in here [point to envelope]. Okay, I'm going to close my eyes now, and you can decide what you want to do with the stickers. When you've made up your mind, just leave the envelope on the table and tap me on the hand.

Stickers Given? _____

[clear stickers from table]

Trial 2

See this person right here? [point to character on screen] [He/She] was born to a mom who is in jail right now. See [his/her] mom right here?

Now, here are some more stickers. You can decide how many stickers you want to give the person I just told you about. You can give as many stickers as you want, but you cannot keep any for yourself. Any stickers you want to give to this person can go in this envelope. Any stickers that you do not want to give to this person can go in the trash envelope here, and I will throw them away when we finish. Does that make sense?

So remember, any stickers you want to give this person will go in here [point to envelope]. Okay, I'm going to close my eyes now, and you can decide what you want to do with the stickers. When you've made up your mind, just leave the envelope on the table and tap me on the hand.

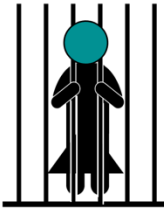
Stickers Given? _____

[clear stickers from table]

That's the end of our game. Thank you so much, you did a great job!

Do you have any questions for me?

Study 1: Materials (Example Stimuli)



Study 1: Descriptive Statistics for Each Item

Table S5.1

Descriptive Statistics for Belief Attribution Scores, Study 1 (-2.5= very sure individual with non-incarcerated parent possessed belief; +2.5= very sure individual with incarcerated parent possessed belief)

Age Group	Belief Type	Mean	Standard Deviation	N
5- to 6-year-olds	Conventional	-.33	1.43	91
	Moral	-.59	1.50	91
7- to 8-year-olds	Conventional	-.98	1.40	71
	Moral	-1.27	1.40	71

Table S5.2

Descriptive Statistics for Number of Resources Shared, Study 1 (0= fewest possible resources shared; 5= most possible resources shared)

Age Group	Character	Mean	Standard Deviation	N
5- to 6-year-olds	Parent Not Incarcerated	3.96	1.26	89
	Parent Incarcerated	2.63	1.74	89
7- to 8-year-olds	Parent Not Incarcerated	4.01	1.07	70
	Parent Incarcerated	2.63	1.59	70

Table S5.3

Number of Participants Choosing a Given Character Per Trial, Study 1

Age Group	Norm Type	Item ("One person here thinks that...")	# Participants Choosing Peer With Incarcerated Parent	# Participants Choosing Peer Without Incarcerated Parent
5- to 6-year-olds	Conventional	"...breaking the rules of a game is wrong"	37	54
		"...not saying 'please' when asking for something is wrong"	39	52
		"...talking in class without raising your hand is wrong"	38	52
		"...wearing pajamas to school is wrong"	38	53
	Moral	"...making another person cry on purpose is wrong"	36	55
		"...pushing another person down on the playground is wrong"	33	57
		"...stealing another person's toy is wrong"	30	59
		"...hitting another person is wrong"	34	57
7- to 8-year-olds	Conventional	"...breaking the rules of a game is wrong"	20	51
		"...not saying 'please' when asking for something is wrong"	20	51
		"...talking in class without raising your hand is wrong"	22	49
		"...wearing pajamas to school is wrong"	23	47
	Moral	"...making another person cry on purpose is wrong"	17	54

		"...pushing another person down on the playground is wrong"	15	56
		"...stealing another person's toy is wrong"	18	53
		"...hitting another person is wrong"	15	56

Study 2: Analyses Comparing Responses of Participants Who Reported Knowing At Least One Incarcerated Person with Responses of Participants Who Did Not

We conducted a series of independent-samples *t* tests to examine whether knowing an incarcerated person predicted average attribution scores for conventional, factual, and moral beliefs for characters whose parent was present, away on a business trip, and incarcerated. This approach resulted in nine analyses among 5- to 6-year-olds and, separately, nine among 7- to 8-year-olds, for a total of 18 tests. Therefore, *p* values needed to be .003 or lower to pass the Bonferroni-corrected significance threshold. Among younger children, no significant differences in responses emerged between those who knew an incarcerated person and those who did not. This pattern emerged for younger participants' judgments regarding the character whose parent was present (conventional beliefs: $t(79)=-.03$, $p=.978$, Cohen's $d=-.01$, 95% CI_{diff}: [-1.15, 1.12]; factual beliefs: $t(79)=.91$, $p=.363$, Cohen's $d=.39$, 95% CI_{diff}: [-.52, 1.39]; moral beliefs: $t(79)=.97$, $p=.333$, Cohen's $d=.41$, 95% CI_{diff}: [-.53, 1.54]), the character whose parent was on a business trip (conventional beliefs: $t(79)=-.12$, $p=.905$, Cohen's $d=-.05$, 95% CI_{diff}: [-1.28, 1.13]; factual beliefs: $t(79)=.78$, $p=.437$, Cohen's $d=.33$, 95% CI_{diff}: [-.66, 1.50]; moral beliefs: $t(79)=-.04$, $p=.972$, Cohen's $d=-.02$, 95% CI_{diff}: [-1.27, 1.22]), and the character whose parent was incarcerated (conventional beliefs: $t(79)=2.03$, $p=.046$, Cohen's $d=.86$, 95% CI_{diff}: [.02, 2.19]; factual beliefs: $t(79)=.96$, $p=.341$, Cohen's $d=.41$, 95% CI_{diff}: [-.60, 1.72]; moral beliefs: $t(79)=2.21$, $p=.030$, Cohen's $d=.94$, 95% CI_{diff}: [.14, 2.61]).

We found a similar non-significant pattern of results among older children. Namely, this non-significant pattern emerged for older participants' judgments regarding the character whose parent was present (conventional beliefs: $t(79)=-.90$, $p=.370$, Cohen's $d=-.91$, 95% CI_{diff}: [-3.34, 1.26]; factual beliefs: $t(79)=-.35$, $p=.726$, Cohen's $d=-.35$, 95% CI_{diff}: [-2.19, 1.53]; moral

beliefs: $t(79)=-.54, p=.594$, Cohen's $d=-.54$, 95% CI_{diff}: [-2.05, 1.18]), the character whose parent was on a business trip (conventional beliefs: $t(79)=-.49, p=.625$, Cohen's $d=-.49$, 95% CI_{diff}: [-2.98, 1.80]; factual beliefs: $t(79)=-.65, p=.517$, Cohen's $d=-.66$, 95% CI_{diff}: [-2.15, 1.09]; moral beliefs: $t(79)=-.76, p=.451$, Cohen's $d=-.76$, 95% CI_{diff}: [-3.34, 1.50]), and the character whose parent was incarcerated (conventional beliefs: $t(79)=-1.39, p=.170$, Cohen's $d=-1.39$, 95% CI_{diff}: [-4.81, .86]; factual beliefs: $t(79)=.74, p=.459$, Cohen's $d=.75$, 95% CI_{diff}: [-1.22, 2.68]; moral beliefs: $t(79)=-.91, p=.368$, Cohen's $d=-.91$, 95% CI_{diff}: [-4.42, 1.65]). Thus, we did not find strong evidence that knowing at least one incarcerated person predicted participants' responses to the belief attribution items.

Additionally, we conducted a series of independent-samples t tests to examine whether knowing an incarcerated person predicted participants' resource allocation decisions. This approach resulted in three analyses among 5- to 6-year-olds and, separately, three among 7- to 8-year-olds, for a total of six tests. Therefore, p values needed to be .008 or lower to pass the Bonferroni-corrected significance threshold. Among younger children, no significant differences in behavior emerged between those who knew an incarcerated person and those who did not (parent present: ($t(79)=-.98, p=.329$, Cohen's $d=-.42$, 95% CI_{diff}: [-1.80, .61]); parent on business trip: ($t(79)=-1.42, p=.159$, Cohen's $d=-.61$, 95% CI_{diff}: [-2.07, .35]); parent incarcerated: ($t(79)=.44, p=.664$, Cohen's $d=.19$, 95% CI_{diff}: [-1.14, 1.78])). We found a similar non-significant pattern of results among older children (parent present: ($t(79)=-.82, p=.415$, Cohen's $d=.83$, 95% CI_{diff}: [-3.51, 1.46]); parent on business trip: ($t(79)=-.31, p=.756$, Cohen's $d=-.31$, 95% CI_{diff}: [-2.87, 2.09]); parent incarcerated: ($t(79)=-.05, p=.958$, Cohen's $d=-.05$, 95% CI_{diff}: [-3.37, 3.20])). Thus, we did not find strong evidence that knowing at least one incarcerated person predicted participants' behaviors.

Study 2: Analyses Comparing Responses of White and Non-White Participants

We conducted a series of independent-samples t tests to examine the extent to which participant race (White vs. non-White) predicted average attribution scores for conventional, factual, and moral beliefs for characters whose parent was present, away on a business trip, and incarcerated. This approach resulted in nine analyses among 5- to 6-year-olds and, separately, nine among 7- to 8-year-olds, for a total of 18 tests. Therefore, p values needed to be .003 or lower to pass the Bonferroni-corrected significance threshold.

Among younger children, no significant differences in responses emerged between White and non-White individuals. This pattern emerged for younger participants' judgments regarding the character whose parent was present (conventional beliefs: $t(78)=-.48, p=.632$, Cohen's $d=-.12$, 95% CI_{diff}: [-.86, .52]; factual beliefs: $t(78)=-.14, p=.888$, Cohen's $d=-.04$, 95% CI_{diff}: [-.63, .54]; moral beliefs: $t(78)=.20, p=.842$, Cohen's $d=.05$, 95% CI_{diff}: [-.57, .70]), the character whose parent was on a business trip (conventional beliefs: $t(78)=-.29, p=.774$, Cohen's $d=-.07$, 95% CI_{diff}: [-.84, .63]; factual beliefs: $t(78)=-.97, p=.337$, Cohen's $d=-.25$, 95% CI_{diff}: [-.98, .34]; moral beliefs: $t(78)=-1.33, p=.189$, Cohen's $d=-.34$, 95% CI_{diff}: [-1.25, .25]), and the character whose parent was incarcerated (conventional beliefs: $t(78)=-1.17, p=.224$, Cohen's $d=-.30$, 95% CI_{diff}: [-1.06, .27]; factual beliefs: $t(78)=-.97, p=.335$, Cohen's $d=-.25$, 95% CI_{diff}: [-1.05, .36]; moral beliefs: $t(78)=-.86, p=.393$, Cohen's $d=-.86$, 95% CI_{diff}: [-1.11, .44]).

We found a similar non-significant pattern of results among older children. Namely, this non-significant pattern emerged for older participants' judgments regarding the character whose parent was present (conventional beliefs: $t(80)=-1.33, p=.187$, Cohen's $d=-.30$, 95% CI_{diff}: [-.85, .17]; factual beliefs: $t(80)=-.59, p=.560$, Cohen's $d=-.13$, 95% CI_{diff}: [-.54, .29]; moral beliefs: $t(80)=-.79, p=.430$, Cohen's $d=-.18$, 95% CI_{diff}: [-.50, .22]), the character whose parent was on a

business trip (conventional beliefs: $t(53.61)=-1.72, p=.092$, Cohen's $d=-.41$, 95% CI_{diff} : [-1.04, .08]; factual beliefs: $t(80)=-.32, p=.748$, Cohen's $d=-.07$, 95% CI_{diff} : [-.42, .30]; moral beliefs: $t(80)=-.06, p=.951$, Cohen's $d=-.01$, 95% CI_{diff} : [-.56, .53]), and the character whose parent was incarcerated (conventional beliefs: $t(55.48)=.40, p=.694$, Cohen's $d=.09$, 95% CI_{diff} : [-.55, .82]; factual beliefs: $t(78.36)=2.72, p=.008$, Cohen's $d=.58$, 95% CI_{diff} : [.14, .93]; moral beliefs: $t(80)=-.09, p=.926$, Cohen's $d=-.02$, 95% CI_{diff} : [-.71, .65]). Thus, we did not find strong evidence that participant race predicted participants' responses to the belief attribution items.

Additionally, we conducted a series of independent-samples t tests to examine whether knowing an incarcerated person predicted participants' resource allocation decisions. This approach resulted in three analyses among 5- to 6-year-olds and, separately, three among 7- to 8-year-olds, for a total of six tests. Therefore, p values needed to be .008 or lower to pass the Bonferroni-corrected significance threshold. Among younger children, no significant differences in responses emerged between White and non-White individuals. This pattern emerged for younger participants' judgments regarding the character whose parent was present ($t(79)=-.98, p=.329$, Cohen's $d=-.42$, 95% CI_{diff} : [-1.80, .61]), the character whose parent was on a business trip: ($t(79)=-1.42, p=.159$, Cohen's $d=-.61$, 95% CI_{diff} : [-2.07, .35]), and the character whose parent was incarcerated: ($t(79)=.44, p=.664$, Cohen's $d=.19$, 95% CI_{diff} : [-1.14, 1.78]). We found a similar non-significant pattern of results among older children. Namely, this non-significant pattern emerged for older participants' judgments regarding the character whose parent was present ($t(79)=-.82, p=.415$, Cohen's $d=.83$, 95% CI_{diff} : [-3.51, 1.46]), character whose parent was on business trip ($t(79)=-.31, p=.756$, Cohen's $d=-.31$, 95% CI_{diff} : [-2.87, 2.09]), and character whose parent was incarcerated ($t(79)=-.05, p=.958$, Cohen's $d=-.05$, 95% CI_{diff} : [-3.37,

3.20]). Thus, we did not find strong evidence that participant race predicted resource allocation decisions.

Study 2: Analyses Comparing Responses of Hispanic/Latinx and Non-Hispanic Latinx Participants

We conducted a series of independent-samples t tests to examine the extent to which participant race (Hispanic/Latinx vs. non-Hispanic/Latinx) predicted average attribution scores for conventional, factual, and moral beliefs for characters whose parent was present, away on a business trip, and incarcerated. This approach resulted in nine analyses among 5- to 6-year-olds and, separately, nine among 7- to 8-year-olds, for a total of 18 tests. Therefore, p values needed to be .003 or lower to pass the Bonferroni-corrected significance threshold.

Among younger children, no significant differences in responses emerged between Hispanic/Latinx and non-Hispanic/Latinx individuals. This pattern emerged for younger participants' judgments regarding the character whose parent was present (conventional beliefs: $t(78)=-.43$, $p=.671$, Cohen's $d=-.16$, 95% CI_{diff} : [-1.21, .78]; factual beliefs: $t(78)=-1.92$, $p=.059$, Cohen's $d=-.71$, 95% CI_{diff} : [-1.62, .03]; moral beliefs: $t(78)=.24$, $p=.814$, Cohen's $d=.09$, 95% CI_{diff} : [-.81, 1.03]), the character whose parent was on a business trip (conventional beliefs: $t(78)=.01$, $p=.993$, Cohen's $d=0$, 95% CI_{diff} : [-1.05, 1.06]; factual beliefs: $t(78)=.72$, $p=.473$, Cohen's $d=.27$, 95% CI_{diff} : [-.61, 1.30]; moral beliefs: $t(78)=-.07$, $p=.947$, Cohen's $d=-.03$, 95% CI_{diff} : [-1.13, 1.06]), and the character whose parent was incarcerated (conventional beliefs: $t(78)=.50$, $p=.617$, Cohen's $d=.19$, 95% CI_{diff} : [-.73, 1.22]; factual beliefs: $t(78)=-2.16$, $p=.034$, Cohen's $d=-.81$, 95% CI_{diff} : [-2.08, -.09]; moral beliefs: $t(78)=-1.23$, $p=.223$, Cohen's $d=-.46$, 95% CI_{diff} : [-1.80, .42]).

We found a similar non-significant pattern of results among older children. Namely, this non-significant pattern emerged for older participants' judgments regarding the character whose parent was present (conventional beliefs: $t(80)=1.26, p=.212$, Cohen's $d=.58$, 95% CI_{diff} : [-.38, 1.71]; factual beliefs: $t(80)=.30, p=.763$, Cohen's $d=.13$, 95% CI_{diff} : [-.72, .98]; moral beliefs: $t(80)=1.23, p=.224$, Cohen's $d=.56$, 95% CI_{diff} : [-.28, 1.18]), the character whose parent was on a business trip (conventional beliefs: $t(80)=-1.10, p=.276$, Cohen's $d=-.51$, 95% CI_{diff} : [-1.68, .49]; factual beliefs: $t(80)=.33, p=.740$, Cohen's $d=.15$, 95% CI_{diff} : [-.62, .86]; moral beliefs: $t(80)=-.44, p=.665$, Cohen's $d=-.20$, 95% CI_{diff} : [-1.35, .86]), and the character whose parent was incarcerated (conventional beliefs: $t(80)=.81, p=.421$, Cohen's $d=.37$, 95% CI_{diff} : [-.78, 1.84]; factual beliefs: $t(80)=.50, p=.619$, Cohen's $d=.23$, 95% CI_{diff} : [-.67, 1.11]; moral beliefs: $t(10.18)=-.37, p=.716$, Cohen's $d=-.07$, 95% CI_{diff} : [-.75, .53]). Thus, we did not find strong evidence that participant ethnicity predicted participants' responses to the belief attribution items.

Additionally, we conducted a series of independent-samples t tests to examine whether knowing an incarcerated person predicted participants' resource allocation decisions. This approach resulted in three analyses among 5- to 6-year-olds and, separately, three among 7- to 8-year-olds, for a total of six tests. Therefore, p values needed to be .008 or lower to pass the Bonferroni-corrected significance threshold. Among younger children, no significant differences in responses emerged between White and non-White individuals. This pattern emerged for younger participants' judgments regarding the character whose parent was present ($t(78)=-.24, p=.811$, Cohen's $d=-.09$, 95% CI_{diff} : [-1.16, .91]), the character whose parent was on a business trip: ($t(78)=-1.85, p=.068$, Cohen's $d=-.67$, 95% CI_{diff} : [-1.99, .07]), and the character whose parent was incarcerated: ($t(78)=.51, p=.615$, Cohen's $d=.19$, 95% CI_{diff} : [-.94, 1.58]). We found a

similar non-significant pattern of results among older children. Namely, this pattern emerged for the character whose parent was present ($t(80)=-1.88, p=.064$, Cohen's $d=-.87$, 95% CI_{diff} : [-2.17, .06]), the character whose parent was on a business trip: ($t(80)=-.04, p=.967$, Cohen's $d=-.02$, 95% CI_{diff} : [-1.15, 1.11]), and the character whose parent was incarcerated: ($t(80)=.42, p=.675$, Cohen's $d=.19$, 95% CI_{diff} : [-1.18, 1.82]). Thus, we did not find strong evidence that participant ethnicity predicted resource allocation decisions.

Study 2: Relation Between Belief Attribution Scores and Number of Resources

Shared

We conducted a series of bivariate correlations to examine the extent to which belief attribution scores predicted the number of resources children shared with peers whose parents were and, separately, were not incarcerated. We conducted this analysis for both conventional and moral belief attribution scores. This approach resulted in four analyses among 5- to 6-year-olds and, separately, four among 7- to 8-year-olds, for a total of eight tests. Therefore, p values needed to be .006 or lower to pass the Bonferroni-corrected significance threshold. One correlation reached significance among older children: the more certain older children were that parents were, versus were not, incarcerated possess a conventional belief, the fewer resources they shared with peers whose parents were not incarcerated; however, this effect dropped to non-significance after applying the Bonferroni correction ($r=-.29, p=.015$). No other tests reached significance ($|r|s \leq .21, ps \geq .077$). Thus, we did not find strong evidence that participants' belief attribution scores predicted their resource allocation decisions.

Study 2: Materials (Example Coding Sheet)

The below document includes instructions and items presented to participants in Study 2. Participants completed one of four possible versions of this study. For brevity, we include only one version below. The only difference between the coding sheet presented below and the additional coding sheets is block order (the order in which participants learned about each character was counterbalanced across participants) and the order of experimental items within each block.

Subject number: _____ Birth Date: ____ / ____ / ____ Today's Date: ____ / ____ / ____
Ethnicity: Hispanic or Not Hispanic? Race: _____ Gender: M or F or O?
Recruitment/Interview Location: _____ CJS Involvement: Y or N?

[Begin by going through the assent script. If child says he/she wants to do the study, continue with the questions below.]

I'm going to ask you questions, like what you think about other kids. There aren't any right or wrong answers; I just want to know whatever you think.

INTRODUCTION

Now we're going to talk about some people. [click]

See this person right here? [point with cursor to the character on the left side of the screen] [He/She] was born to this mom [point with cursor]. [He/She] lives far away from [his/her] mom because [his/her] mom is traveling on a business trip right now. [His/Her] mom has been away on the business trip for one year. [click]

And see this person right here? [point with cursor to character in the middle of the screen] [He/She] was born to this mom [point with cursor]. [He/She] lives with [his/her] mom because [his/her] mom is not in jail right now and is not traveling on a business trip. They have lived in the same place for one year. [click]

And see this person right here? [point with cursor with cursor to character on right side of screen] [He/She] was born to this mom [point with cursor]. [He/She] lives far away from [his/her] mom because [his/her] mom is in jail right now. [His/Her] mom has been in jail for one year. [His/her] mom has never gone on a business trip for work. [click to next slide]

BLOCK 1: PARENT ON BUSINESS TRIP

Remember this person? [He/She] was born this mom [point with cursor]. [He/She] lives far away from [his/her] mom because [his/her] mom is traveling on a business trip right now. [His/Her] mom has been away on the business trip for one year.

1. Does this person think that **tigers have stripes?** Yes or No? [circle one]

- a. Are you really sure, kind of sure, or not very sure about that? [circle one]
 - i. Really sure
 - ii. Kind of sure
 - iii. Not very sure
2. Does this person think that **hitting another person is wrong?** Yes or No? [circle one]
 - a. Are you really sure, kind of sure, or not very sure about that? [circle one]
 - i. Really sure
 - ii. Kind of sure
 - iii. Not very sure
3. Does this person think that **not saying “please” when asking for something is wrong?** Yes or No? [circle one]
 - a. Are you really sure, kind of sure, or not very sure about that? [circle one]
 - i. Really sure
 - ii. Kind of sure
 - iii. Not very sure
4. Does this person think that **pushing another person down on the playground is wrong?** Yes or No? [circle one]
 - a. Are you really sure, kind of sure, or not very sure about that? [circle one]
 - i. Really sure
 - ii. Kind of sure
 - iii. Not very sure
5. Does this person think that **talking in class without raising your hand is wrong?** Yes or No? [circle one]
 - a. Are you really sure, kind of sure, or not very sure about that? [circle one]
 - i. Really sure
 - ii. Kind of sure
 - iii. Not very sure
6. Does this person think that **germs are very small?** Yes or No? [circle one]
 - a. Are you really sure, kind of sure, or not very sure about that? [circle one]
 - i. Really sure
 - ii. Kind of sure
 - iii. Not very sure
7. Does this person think that **stealing another person’s toy is wrong?** Yes or No? [circle one]
 - a. Are you really sure, kind of sure, or not very sure about that? [circle one]
 - i. Really sure
 - ii. Kind of sure
 - iii. Not very sure
8. Does this person think that **wearing pajamas to school is wrong?** Yes or No? [circle one]

- a. Are you really sure, kind of sure, or not very sure about that? [circle one]
 - i. Really sure
 - ii. Kind of sure
 - iii. Not very sure
9. Does this person think that **fish live in the water**? Yes or No? [circle one]
- a. Are you really sure, kind of sure, or not very sure about that? [circle one]
 - i. Really sure
 - ii. Kind of sure
 - iii. Not very sure

[click to next slide]

BLOCK 2: PARENT PRESENT

Remember this person? [He/She] was born to this mom [point with cursor]. [He/She] lives with [his/her] mom because [his/her] mom is not in jail right now and is not traveling on a business trip. They have lived in the same place for one year.

- 1. Does this person think that **tigers have stripes**? Yes or No? [circle one]
 - a. Are you really sure, kind of sure, or not very sure about that? [circle one]
 - i. Really sure
 - ii. Kind of sure
 - iii. Not very sure
- 2. Does this person think that **hitting another person is wrong**? Yes or No? [circle one]
 - a. Are you really sure, kind of sure, or not very sure about that? [circle one]
 - i. Really sure
 - ii. Kind of sure
 - iii. Not very sure
- 3. Does this person think that **not saying “please” when asking for something is wrong**? Yes or No? [circle one]
 - a. Are you really sure, kind of sure, or not very sure about that? [circle one]
 - i. Really sure
 - ii. Kind of sure
 - iii. Not very sure
- 4. Does this person think that **pushing another person down on the playground is wrong**? Yes or No? [circle one]
 - a. Are you really sure, kind of sure, or not very sure about that? [circle one]
 - i. Really sure
 - ii. Kind of sure
 - iii. Not very sure
- 5. Does this person think that **talking in class without raising your hand is wrong**? Yes or No? [circle one]

- a. Are you really sure, kind of sure, or not very sure about that? [circle one]
 - i. Really sure
 - ii. Kind of sure
 - iii. Not very sure

- 6. Does this person think that **germs are very small**? Yes or No? [circle one]
 - a. Are you really sure, kind of sure, or not very sure about that? [circle one]
 - i. Really sure
 - ii. Kind of sure
 - iii. Not very sure

- 7. Does this person think that **stealing another person's toy is wrong**? Yes or No? [circle one]
 - a. Are you really sure, kind of sure, or not very sure about that? [circle one]
 - i. Really sure
 - ii. Kind of sure
 - iii. Not very sure

- 8. Does this person think that **wearing pajamas to school is wrong**? Yes or No? [circle one]
 - a. Are you really sure, kind of sure, or not very sure about that? [circle one]
 - i. Really sure
 - ii. Kind of sure
 - iii. Not very sure

- 9. Does this person think that **fish live in the water**? Yes or No? [circle one]
 - a. Are you really sure, kind of sure, or not very sure about that? [circle one]
 - i. Really sure
 - ii. Kind of sure
 - iii. Not very sure

[click to next slide]

BLOCK 3: PARENT INCARCERATED

Remember this person? [He/She] was born to this mom [point with cursor]. [He/She] lives far away from [his/her] mom because [his/her] mom is in jail right now. [His/Her] mom has been in jail for one year. [His/her] mom has never gone on a business trip for work. [click]

- 1. Does this person think that **tigers have stripes**? Yes or No? [circle one]
 - a. Are you really sure, kind of sure, or not very sure about that? [circle one]
 - i. Really sure
 - ii. Kind of sure
 - iii. Not very sure

- 2. Does this person think that **hitting another person is wrong**? Yes or No? [circle one]

- a. Are you really sure, kind of sure, or not very sure about that? [circle one]
 - i. Really sure
 - ii. Kind of sure
 - iii. Not very sure
3. Does this person think that **not saying “please” when asking for something is wrong**? Yes or No? [circle one]
 - a. Are you really sure, kind of sure, or not very sure about that? [circle one]
 - i. Really sure
 - ii. Kind of sure
 - iii. Not very sure
4. Does this person think that **pushing another person down on the playground is wrong**? Yes or No? [circle one]
 - a. Are you really sure, kind of sure, or not very sure about that? [circle one]
 - i. Really sure
 - ii. Kind of sure
 - iii. Not very sure
5. Does this person think that **talking in class without raising your hand is wrong**? Yes or No? [circle one]
 - a. Are you really sure, kind of sure, or not very sure about that? [circle one]
 - i. Really sure
 - ii. Kind of sure
 - iii. Not very sure
6. Does this person think that **germs are very small**? Yes or No? [circle one]
 - a. Are you really sure, kind of sure, or not very sure about that? [circle one]
 - i. Really sure
 - ii. Kind of sure
 - iii. Not very sure
7. Does this person think that **stealing another person’s toy is wrong**? Yes or No? [circle one]
 - a. Are you really sure, kind of sure, or not very sure about that? [circle one]
 - i. Really sure
 - ii. Kind of sure
 - iii. Not very sure
8. Does this person think that **wearing pajamas to school is wrong**? Yes or No? [circle one]
 - a. Are you really sure, kind of sure, or not very sure about that? [circle one]
 - i. Really sure
 - ii. Kind of sure
 - iii. Not very sure
9. Does this person think that **fish live in the water**? Yes or No? [circle one]

- a. Are you really sure, kind of sure, or not very sure about that? [circle one]
 - i. Really sure
 - ii. Kind of sure
 - iii. Not very sure

[click to next slide]

STICKER-SHARING TASK: PARENT ON BUSINESS TRIP

Remember this person? [He/She] was born this mom [point with cursor]. [He/She] lives far away from [his/her] mom because [his/her] mom is traveling on a business trip right now. [His/Her] mom has been away on the business trip for one year.

Now, here are some more stickers. You can decide how many stickers you want to give the person I just told you about. You can give as many stickers as you want, but you cannot keep any for yourself. Any stickers you want to give to this person can go in this envelope [point with cursor to envelope]. Any stickers that you do not want to give to this person can go in the trash envelope here [point to envelope], and they will be thrown away. Does that make sense? So remember, any stickers you want to give this person will go in here [point with cursor to envelope].

Okay, so which envelope do you want to put this sticker in? [put Sticker #1 in correct envelope]

Okay, and how about this one? [put Sticker #2 in correct envelope]

Okay, and how about this one? [put Sticker #3 in correct envelope]

Okay, and how about this one? [put Sticker #4 in correct envelope]

Okay, and how about this one? [put Sticker #5 in correct envelope]

Stickers Given? _____

[click to next slide]

STICKER-SHARING TASK: PARENT PRESENT

Remember this person? [He/She] was born to this mom [point with cursor]. [He/She] lives with [his/her] mom because [his/her] mom is not in jail right now and is not traveling on a business trip. They have lived in the same place for one year.

Now, here are some more stickers. You can decide how many stickers you want to give the person I just told you about. You can give as many stickers as you want, but you cannot keep any for yourself. Any stickers you want to give to this person can go in this envelope [point with cursor to envelope]. Any stickers that you do not want to give to this person can go in the trash envelope here [point with cursor to envelope], and they will be thrown away. Does that make sense? So remember, any stickers you want to give this person will go in here [point with cursor to envelope].

Okay, so which envelope do you want to put this sticker in? [put Sticker #1 in correct envelope]
Okay, and how about this one? [put Sticker #2 in correct envelope]
Okay, and how about this one? [put Sticker #3 in correct envelope]
Okay, and how about this one? [put Sticker #4 in correct envelope]
Okay, and how about this one? [put Sticker #5 in correct envelope]

Stickers Given? _____

[click to next slide]

STICKER-SHARING TASK: PARENT INCARCERATED

Remember this person? [He/She] was born to this mom [point with cursor]. [He/She] lives far away from [his/her] mom because [his/her] mom is in jail right now. [His/Her] mom has been in jail for one year. [His/her] mom has never gone on a business trip for work.

Now, here are some stickers. You can decide how many stickers you want to give the person I just told you about. You can give as many stickers as you want, but you cannot keep any for yourself. Any stickers you want to give to this person can go in this envelope [point with cursor to envelope]. Any stickers that you do not want to give to this person can go in the trash envelope here [point with cursor to envelope], and they will be thrown away. Does that make sense? So remember, any stickers you want to give this person will go in here [point with cursor to envelope].

Okay, so which envelope do you want to put this sticker in? [put Sticker #1 in correct envelope]
Okay, and how about this one? [put Sticker #2 in correct envelope]
Okay, and how about this one? [put Sticker #3 in correct envelope]
Okay, and how about this one? [put Sticker #4 in correct envelope]
Okay, and how about this one? [put Sticker #5 in correct envelope]

Stickers Given? _____

[click to ending slide]

*That's the end of our game. Thank you so much, you did a great job!
Do you have any questions for me?*

Study 2: Materials (Example Stimuli)



Study 2: Descriptive Statistics for Each Item

Table S5.4

Descriptive Statistics for Item Measuring Average Belief Attribution Scores, Study 1 (-2.5= very sure individual did not possess belief; +2.5= very sure individual possessed belief)

Age Group	Individual	Belief Type	Mean	Standard Deviation	N	
5- to 6-year-olds	Parent Present	Conventional	1.19	1.32	84	
		Factual	1.65	1.13	84	
		Moral	1.57	1.22	84	
	Parent on Business Trip	Conventional	.87	1.41	84	
		Factual	1.51	1.26	84	
		Moral	1.22	1.47	84	
	Parent Incarcerated	Conventional	.79	1.32	84	
		Factual	1.39	1.35	84	
		Moral	1.05	1.50	84	
	7- to 8-year-olds	Parent Present	Conventional	1.47	1.33	85
			Factual	1.86	.91	85
			Moral	2.08	.79	85
Parent on Business Trip		Conventional	.94	1.16	85	
		Factual	1.64	.82	85	
		Moral	1.62	1.19	85	
Parent Incarcerated		Conventional	.52	1.40	85	
		Factual	1.55	.96	85	
		Moral	.79	1.49	85	

Table S5.5

Descriptive Statistics for Number of Resources Shared, Study 2 (0= fewest possible resources shared; 5= most possible resources shared)

Age Group	Character	Mean	Standard Deviation	N
5- to 6-year-olds	Parent Present	3.93	1.41	84
	Parent on Business Trip	3.71	1.42	84
	Parent Incarcerated	3.35	1.71	84
7- to 8-year-olds	Parent Present	4.00	1.22	85
	Parent on Business Trip	3.58	1.23	85
	Parent Incarcerated	2.91	1.60	85

Study 2: Statistics Associated with Each Pairwise Comparison (Comparing Pairs of Belief Attribution Scores Within Each Age Group)

5- to 6-year-olds: Moral Beliefs

Parent Present vs. Parent on Business Trip: $p=.025$, Cohen's $d=.25$, 95% CI_{diff}: [.05, .65]

Parent Present vs. Parent Incarcerated: $p=.002$, Cohen's $d=.34$, 95% CI_{diff}: [.19, .85]

Parent on Business Trip vs. Parent Incarcerated: $p=.306$, Cohen's $d=.12$, 95% CI_{diff}: [-.16, .50]

5- to 6-year-olds: Conventional Beliefs

Parent Present vs. Parent on Business Trip: $p=.037$, Cohen's $d=.23$, 95% CI_{diff}: [.02, .61]

Parent Present vs. Parent Incarcerated: $p=.016$, Cohen's $d=.27$, 95% CI_{diff}: [.08, .71]

Parent on Business Trip vs. Parent Incarcerated: $p=.627$, Cohen's $d=.05$, 95% CI_{diff}: [-.24, .40]

5- to 6-year-olds: Factual Beliefs

Parent Present vs. Parent on Business Trip: $p=.366$, Cohen's $d=.10$, 95% CI_{diff}: [-.17, .44]

Parent Present vs. Parent Incarcerated: $p=.100$, Cohen's $d=.18$, 95% CI_{diff}: [-.05, .57]

Parent on Business Trip vs. Parent Incarcerated: $p=.443$, Cohen's $d=.08$, 95% CI_{diff}: [-.19, .43]

7- to 8-year-olds: Moral Beliefs

Parent Present vs. Parent on Business Trip: $p<.001$, Cohen's $d=.42$, 95% CI_{diff}: [.22, .69]

Parent Present vs. Parent Incarcerated: $p<.001$, Cohen's $d=.80$, 95% CI_{diff}: [.94, 1.63]

Parent on Business Trip vs. Parent Incarcerated: $p<.001$, Cohen's $d=.48$, 95% CI_{diff}: [.46, 1.20]

7- to 8-year-olds: Conventional Beliefs

Parent Present vs. Parent on Business Trip: $p<.001$, Cohen's $d=.44$, 95% CI_{diff}: [.27, .80]

Parent Present vs. Parent Incarcerated: $p<.001$, Cohen's $d=.59$, 95% CI_{diff}: [.61, 1.30]

Parent on Business Trip vs. Parent Incarcerated: $p=.018$, Cohen's $d=.26$, 95% CI_{diff}: [.07, .76]

7- to 8-year-olds: Factual Beliefs

Parent Present vs. Parent on Business Trip: $p=.062$, Cohen's $d=.21$, 95% CI_{diff}: [-.01, .44]

Parent Present vs. Parent Incarcerated: $p=.019$, Cohen's $d=.26$, 95% CI_{diff}: [.05, .55]

Parent on Business Trip vs. Parent Incarcerated: $p=.093$, Cohen's $d=.10$, 95% CI_{diff}: [-.10, .27]

Study 2: Statistics Associated with Each One-Sample *t*-test (Comparing Belief

Attribution Scores to Zero Within Each Age Group)

5- to 6-year-olds: Moral Beliefs

Parent Present: $p < .001$, Cohen's $d = 1.28$, 95% CI_{diff} : [1.30, 1.83]

Parent on Business Trip: $p < .001$, Cohen's $d = .83$, 95% CI_{diff} : [.90, 1.54]

Parent Incarcerated: $p < .001$, Cohen's $d = .70$, 95% CI_{diff} : [.73, 1.38]

5- to 6-year-olds: Conventional Beliefs

Parent Present: $p < .001$, Cohen's $d = .90$, 95% CI_{diff} : [.90, 1.47]

Parent on Business Trip: $p < .001$, Cohen's $d = .62$, 95% CI_{diff} : [.57, 1.18]

Parent Incarcerated: $p < .001$, Cohen's $d = .60$, 95% CI_{diff} : [.51, 1.08]

5- to 6-year-olds: Factual Beliefs

Parent Present: $p < .001$, Cohen's $d = 1.46$, 95% CI_{diff} : [1.40, 1.89]

Parent on Business Trip: $p < .001$, Cohen's $d = 1.20$, 95% CI_{diff} : [1.24, 1.78]

Parent Incarcerated: $p < .001$, Cohen's $d = 1.20$, 95% CI_{diff} : [1.24, 1.78]

7- to 8-year-olds: Moral Beliefs

Parent Present: $p < .001$, Cohen's $d = 2.64$, 95% CI_{diff} : [1.91, 2.25]

Parent on Business Trip: $p < .001$, Cohen's $d = 1.37$, 95% CI_{diff} : [1.37, 1.88]

Parent Incarcerated: $p < .001$, Cohen's $d = .53$, 95% CI_{diff} : [.47, 1.11]

7- to 8-year-olds: Conventional Beliefs

Parent Present: $p < .001$, Cohen's $d = 1.30$, 95% CI_{diff} : [1.23, 1.72]

Parent on Business Trip: $p < .001$, Cohen's $d = .81$, 95% CI_{diff} : [.69, 1.19]

Parent Incarcerated: $p < .001$, Cohen's $d = .37$, 95% CI_{diff} : [.22, .82]

7- to 8-year-olds: Factual Beliefs

Parent Present: $p < .001$, Cohen's $d = 2.05$, 95% CI_{diff} : [1.66, 2.05]

Parent on Business Trip: $p < .001$, Cohen's $d = 2.01$, 95% CI_{diff} : [1.46, 1.82]

Parent Incarcerated: $p < .001$, Cohen's $d = 2.01$, 95% CI_{diff} : [1.46, 1.82]