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Youth on trial: How framing and language influence public support for harsh sentences

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We investigated how question wording and framing influence public attitudes towards sentencing juvenile murder offenders. Using an experimental survey of 1,193 U.S. adults, we test the effects of three terms or frames: "individual under the age of 18," "child," and a neuroscientific prompt describing adolescent brain development, emphasizing delayed maturation of the prefrontal cortex. The term "child" reduces support for harsher sentences, including adult sentencing, life imprisonment, and the death penalty, while increasing support for a 15-year maximum sentence. The neuroscientific prompt had minimal effect on attitudes towards harsh sentences, suggesting that the "child" term is more effective than technical explanations. Gender moderated framing effects, with the child framing having stronger impacts on men than on women.

Keywords sentencing, juveniles, public opinion, question wording, framing, brain development

Introduction

Public debates about how to punish youth who commit serious crimes reveal deep contradictions about justice, culpability, and reform. The same young offender may be described as a "child" who is immature and capable of rehabilitation or as a "criminal" who should face adult penalties. These competing portrayals shape how citizens understand youth culpability and how they evaluate appropriate punishment. However, despite extensive legal and scholarly attention to juvenile justice, less is known about how subtle linguistic

distinctions influence individual sentencing preferences when members of the public are asked to evaluate youth offenders in survey contexts, particularly in homicide cases.

This study examines that question through the lens of framing theory, which explains how the presentation of information influences interpretation and judgement by activating certain values, emotions, or considerations (Chong and Druckman 2007). Prior research demonstrates that even minor wording variations can meaningfully alter public opinion on social issues such as welfare, climate change, and sex work (Hansen and Johansson 2023; Navarro and Hansen 2025; Schuldt *et al.* 2011). In the context of punishment, emotionally evocative and symbolic language often elicits stronger reactions than technical or fact-based wording (Dunbar 2022). These findings suggest that public attitudes towards youth offenders may be highly responsive to the language used to describe them. It is plausible that referring to an offender as a "child" activates associations with innocence, dependency, and moral protection, whereas using the term "individual under the age of 18" leads respondents to envision an older and more culpable adolescent. Whether such distinctions influence sentencing attitudes is an empirical question this study seeks to test.

The framing of youth in crime contexts has shifted markedly over time. During the 1990s, the "super-predator" narrative portrayed young offenders as irredeemable and morally deficient, leading to widespread public support for adult-like penalties (DiLulio 1995). In contrast, more recent decisions of the Supreme Court of the United States have emphasized developmental immaturity and the potential for reform among juveniles, grounding these rulings in adolescent brain research (Graham v. Florida 2010; *Miller v. Alabama* 2012; Montgomery v. Louisiana 2016; Roper v. Simmons 2005). This shift reflects an evolving interpretation of culpability within parts of the American legal system (Steinberg 2017). These opposing narratives, the punitive super-predator frame and the developmental child frame, illustrate two dominant ways society is invited to think about youth culpability and punishment (Steinberg and Piquero 2010).

Although framing effects are well documented in public opinion research, few survey-experimental studies have applied them to the juvenile justice context, and almost none have done so in relation to homicide, which remains the most severe and symbolically charged offence (Applegate *et al.* 2009; Ghetti and Redlich 2001; Greene and Evelo 2013; Steinberg and Piquero 2010). Understanding how language influences support for punishment in such cases is essential, given the continuing legal practice of transferring juveniles to adult court for murder (Sanborn 1996) and persistent racial disparities in youth homicide arrests (OJJDP 2022). The present study isolates selected linguistic elements associated with these broader debates and evaluates how they shape individual sentencing judgements among members of the public in a survey context.

Building on framing theory, this study asks: How do different linguistic and informational frames shape public attitudes towards the sentencing of youth convicted of murder? Specifically, does describing the offender as a "child," rather than as an "individual under the age of 18," reduce support for life sentences? In addition, does providing a neuroscientific explanation of brain development influence public willingness to impose harsh penalties?

Using a preregistered survey experiment with 1,193 U.S. adults, this study tests how alternative descriptions of youth murder offenders, referring to them as "children," "individuals under the age of 18," or with a neuroscientific explanation of brain development, affect public support for adult sentencing, life imprisonment, and the death penalty. By applying framing theory to survey-based evaluations of youth homicide cases, the study provides experimental evidence on how symbolic and scientific cues influence individual sentencing judgements and offers insights relevant to communication and policy discussions in youth justice reform.

An overview of seminal court decisions in youth sentencing

America's emerging juvenile justice system in the 19th century built on 16th-century European reforms that recognized youth as having fundamentally distinct moral and cognitive capacities compared to adults (Puzzanchera *et al.* 2022). For the first half of the 20th century, the British doctrine of *parens patriae*, which allows the state to act as a guardian for those unable to care for themselves, moulded American juvenile courts, beginning most notably in Chicago (with the Hull House, a settlement house associated with the origins of the U.S. juvenile court movement). Constitutional questions related to due process protections for juveniles arose at the federal level from the 1960s to 1970s (*In re Winship* 1970; *Kent v. United States* 1966), challenging the court's exclusive jurisdiction over those under 18. Initially focused on rehabilitation, the treatment model for juveniles came to be viewed as too lenient by the 1980s as the court became more conservative and demonstrated a law-and-order focus in handling juvenile offenders (Martin and Quinn 2002; Stanford v. Kentucky 1989). Adult-like sanctions guided by constitutional sentencing principles, fuelled by super-predator rhetoric, gained prominence in the 1980s and 1990s (DiLulio 1995; Puzzanchera *et al.* 2022).

The tone of juvenile justice began to revert to resemble its original direction during the early 2000s. In 2001, the U.S. Surgeon General, the nation's chief public health authority, discredited the super-predator narrative (Office of the Surgeon General 2001). Accordingly, the Connecticut Supreme Court overturned a 60-year sentence for a juvenile after the sentencing judge relied on the discredited term, with the defence arguing that the (inappropriate) sentencing procedures were based on materially false information (*State v. Belcher* 2002). Shortly thereafter, the Florida Supreme Court in Tate v. State (2003) upheld the life without parole conviction of 12-year-old Lionel Tate for the first-degree murder of a six-year-old girl, rejecting arguments that his age and mental capacity mitigated his culpability. The early 2000s marked a period of clamour over juvenile sentencing, with Tate v. State (2003) being one case at the forefront of judicial scrutiny of harsh sentences for juveniles, putting forward legal conversations about the developmental differences and culpability of juvenile offenders.

During this shift in perspective, a series of landmark Supreme Court of the United States (SCOTUS) decisions ruled on juvenile sentencing, reflecting a growing recognition of juveniles' distinct (neuro)developmental differences from adults. In Roper v. Simmons (2005), the Court cited adolescent brain development to rule that sentencing individuals to death for crimes committed under the age of 18 violates the Eighth Amendment, overturning Stanford v. Kentucky (1989). Building on *Roper's* establishing juveniles' immaturity and greater potential for reform as factors that make them less culpable than adults, Graham v. Florida (2010) prohibited sentencing individuals under 18 to life without parole (LWOP) for non-homicide offences. SCOTUS continued with this outlook of providing young offenders opportunities for rehabilitation in *Miller v. Alabama* (2012), ruling that mandatory LWOP sentences for juveniles, even in homicide cases, are unconstitutional; the decision faced scholarly criticism on the empirical evidence used by the justices' framing of the developmental immaturity of juveniles (Welner *et al.* 2023). Montgomery v. Louisiana (2016) closes out this era of judicial introspection at the federal level of juvenile sentencing by making *Miller* retroactive, allowing juveniles previously sentenced to mandatory LWOP to seek resentencing or parole.[1] These rulings are characterized as the impetus for judicial

[1] *Montgomery* reinforced *Miller's* principle that LWOP should be reserved for the rare juvenile whose crime reflects "irretrievable depravity," "irreparable corruption," or "permanent incorrigibility," all descriptive phrases used interchangeably across *Miller*, *Montgomery*, and *Jones* when specifying this rare class of juveniles.

reviews, framed as a "second look" at (harsh) sentences imposed on juvenile offenders, meaning statutory mechanisms that allow courts to reconsider or resentence individuals after a period of incarceration (Feldman 2024), a procedure that receives broad public support (Hannan *et al.* 2023).

President Donald Trump's appointments of three conservative-oriented SCOTUS justices—Neil Gorsuch in 2017, Brett Kavanaugh in 2018, and Amy Coney Barrett in 2020—solidified the 6-3 conservative supermajority, reshaping the Court's ideological composition and leaving precedents on juvenile sentencing vulnerable to redefinition. Using Martin and Quinn's (2002) data on the ideological orientation of the median justice, the Court was less conservative in deciding earlier juvenile sentencing cases than in 2021, when they ruled on *Jones v. Mississippi*, which constricted protections previously afforded to juveniles. This 2021 ruling marked a departure from the more protective stance ruled in *Miller* and *Montgomery* by clarifying that sentencing authorities are not required to explicitly determine permanent incorrigibility before imposing LWOP on juveniles convicted of homicide, as long as the process allows for the consideration of the mitigating characteristics associated with youth. The *Jones* decision devalues developmental and psychological research on juveniles while empowering punitive approaches to juvenile sentencing across states (Gross 2023; see Loudenback 2024), which highlights the need for further research on public opinion, particularly regarding the sentencing of juveniles involved in homicide cases.

Attitudes towards punishment of youth offenders

Public attitudes towards juvenile punishment often diverge from attitudes towards adult offenders (Pickett *et al.* 2014). Recent scholarship suggests that support for rehabilitation has increased in some contexts, particularly regarding younger offenders (Jonson *et al.* 2024), though attitudes remain heterogeneous across offences and institutional settings. This pattern may reflect a belief in the redeemability of juveniles ensnared in the justice system. For instance, a survey of undergraduates from two southeastern U.S. universities found that a majority favoured a balanced justice approach to sanctioning violent juvenile offenders, while roughly one-third supported a rehabilitation approach, and about one-sixth advocated for a punitive approach (Mears *et al.* 2015). More recent nationally based research similarly finds complex and sometimes ambivalent attitudes towards juvenile sentencing. Bolin *et al.* (2021), using a national U.S. sample, show that while many Americans endorse rehabilitative aims for youth, pessimistic views about the moral character and prospects of today's youth are associated with support for blended sentencing approaches, which combine rehabilitative interventions with the possibility of adult sanctions if conditions are not met. These findings suggest that public attitudes towards juvenile punishment often reflect conditional leniency rather than uniformly rehabilitative preferences.

Public punitiveness increases when the severity of the offence is made salient or when juveniles are depicted as having committed particularly violent crimes. For example, respondents in one study were more likely to endorse transferring a juvenile to adult court rather than trying them in juvenile court for a violent offence (Steinberg and Piquero 2010). More specific to the current study's design, a preference for transfer aligns with findings from another study, which demonstrated that such transfers were more likely to be supported when transferring a juvenile who committed murder (Applegate *et al.* 2009). As we explore public attitudes towards juvenile sentencing in murder cases, we note that research has primarily focused on punitive measures with limited consideration of alternative, lenient sentencing options.

While the present study focuses on the U.S., youth justice scholarship demonstrates substantial cross-national variation in how youth culpability and punishment are conceptualized. European research identifies distinct institutional models, ranging from welfare-oriented systems emphasizing diversion and proportionality in the Nordic countries (Lappi-Seppälä 2011) to more politicized or punitive regimes elsewhere (Goldson 2019). Comparative analyses of child-on-child homicide in England and Norway show that similar offences can generate sharply different public and political responses depending on media framing, political culture, and institutional trust (Green 2008). Historical analyses in the United Kingdom (UK) similarly reveal that public acceptance of sentencing outcomes depends not only on offence severity but also on confidence in legal institutions (Rowbotham *et al.* 2003). Broader scholarship on crime labelling and moral panic underscores how linguistic constructions of youth offending shape public demands for punishment (Hall *et al.* 1978). This comparative scholarship suggests that public judgments about youth punishment are shaped by institutional and cultural contexts, with the U.S. representing one distinct penal environment.

Within the U.S., studies show that variation in these attitudes is also shaped by individual-level characteristics. Age, for instance, has demonstrated mixed relationships with punitiveness towards juvenile offenders. Younger individuals tend to be more punitive (Applegate and Davis 2006; Pickett and Chiricos 2012; Pickett *et al.* 2014), supporting life in prison or death sentences for juvenile murder offenders (Applegate and Davis 2006). In other studies, age does not predict attitudes towards juvenile justice policies (Steinberg and Piquero 2010; Welch *et al.* 2019), including deciding whether to try juveniles for homicide in adult court (Applegate *et al.* 2009). Similarly, the relationship between gender and punitive attitudes towards juveniles is inconsistent. Not all studies have found a gender-punitive relationship regarding juvenile justice (Ghetti and Redlich 2001; Pickett and Chiricos 2012; Steinberg and Piquero 2010). Although Applegate *et al.* (2009) identified gender differences in various aspects of juvenile justice, no gender differences existed in support of transferring a juvenile charged with murder to adult court. Among studies that do identify gender differences, men are generally more supportive of punitive measures (Mears *et al.* 2007). Other studies demonstrated that women are more supportive of rehabilitative aims towards juvenile offenders (Mears *et al.* 2015; Welch *et al.* 2019). Race plays a prominent role in juvenile justice, reflecting biases in the perceived salvageability of White youths and persistent concerns about minority threat (Hurwitz and Peffley 2010; Ward 2012; see Pickett *et al.* 2014). Similar to the inconsistent patterns of the other sociodemographics on juvenile justice, race is not always significant (Applegate *et al.* 2009; Pickett *et al.* 2014; Steinberg and Piquero 2010), with no racial differences in providing a range of rehabilitative options for juveniles or trying them in adult court after being charged for murder (Applegate *et al.* 2009; Welch *et al.* 2019). Finally, while individuals with higher education levels may hold more punitive attitudes towards juvenile offenders (Mears *et al.* 2007), other studies show that educated individuals hold less support for trying juveniles as adults (Steinberg and Piquero 2010) or are unrelated to trying them for their murder charges in adult court (Applegate *et al.* 2009).

Recent studies highlight the influence of political attitudes, particularly political ideology, on shaping attitudes towards various criminal justice issues, with stark differences between ideologies (Hansen and Navarro 2023*b*; Hansen and Seppälä 2024; however, see Lee *et al.* 2022), including within corrections (Dunbar 2022; Hannan *et al.* 2023; Hansen and Navarro 2023*a*, 2024). A prominent divide exists between conservatives and liberals on juvenile justice (Mears *et al.* 2007; Mears *et al.* 2015; Pickett and Chiricos 2012; Pickett *et al.* 2014; Steinberg and Piquero 2010; Welch *et al.* 2019). Conservatives favour harsher

sentences, such as trying juveniles as adults (Applegate *et al.* 2009; Steinberg and Piquero 2010), particularly in murder cases (Applegate and Davis 2006; however, see Applegate *et al.* 2009). Conservatives also favour lower age thresholds for trying juveniles as adults and the elimination of the juvenile justice system altogether (Mears *et al.* 2007). However, conservatives and liberals do not differ on all aspects of juvenile sentencing (Applegate *et al.* 2009). Both show similar support for transferring juveniles charged with murder to adult court, but they differ on transfers for violent juveniles and those charged with felonious burglary. When handling (violent) juvenile offenders, liberals favour rehabilitation over punitive measures (Mears *et al.* 2015; Welch *et al.* 2019).

Finally, partisanship is increasingly important considering America's political polarisation and its prominence as a key determinant of opinions on a range of crime and justice issues (Dunbar 2022; Hansen and Navarro 2023*a*, 2023*b*; Hansen and Seppälä 2024; Vanderbei 2024; see Lee *et al.* 2022), including punitive measures (Hansen and Navarro 2024). Republican-led bills in Louisiana and North Carolina reflect partisan politics on juvenile justice by expanding the circumstances under which juveniles can be transferred to adult court and subjected to harsher sentencing (Loudenback 2024). In support of the now-failed bill, the Governor of Louisiana stated, "[t]hese juveniles are not innocent children any longer; they are hardened criminals." (p. 27). At the same time, partisans are not a monolith, as Republican legislatures have also embraced juvenile justice reforms (Gross 2023).

Question wording, framing, and attitudes towards youth sentencing

A substantial body of research demonstrates that public opinion is highly sensitive to wording and framing effects. Even minor linguistic variations can produce large differences in attitudes towards issues such as assistance to the poor versus welfare, climate change versus global warming, and prostitution versus sex work (Denver *et al.* 2024; Dunbar 2022; Hansen and Johansson 2023; Lee *et al.* 2022; Navarro and Hansen 2025; Schuldt *et al.* 2011; Steinberg and Piquero 2010). Framing theory explains these patterns by emphasizing that how an issue is presented shapes interpretation and judgement by highlighting some aspects of reality while obscuring others. Frames influence what considerations come to mind, how individuals assign responsibility, and what moral principles guide evaluation. In contexts of crime and punishment, where moral intuitions are strong, framing can shape whether people view an offender through a lens of blame and retribution or one of sympathy and rehabilitation (Dunbar 2022).

This theoretical perspective is particularly relevant to juvenile sentencing, where judgments of culpability and punishment depend on perceptions of maturity and intent. Framing theory suggests that subtle linguistic cues can alter these perceptions by directing attention towards different interpretive schemas. For example, referring to an offender as a "child" is likely to trigger associations of vulnerability, immaturity, and moral protection, while describing the same person as an "individual under the age of 18" may cue images of an older, more responsible teenager. Such framing does not merely alter surface impressions but can shift the moral reasoning process itself, leading the public to view identical offences through competing moral logics of punishment or rehabilitation.

Empirical research supports the idea that perceptions of youth culpability are context-dependent and shaped by the language and information people receive. Attitudes towards transferring juveniles to adult court vary according to the offender's age, the severity of the offence, and their prior record. Steinberg and Piquero's (2010) question-wording experiment, for example, showed that respondents weighted the offender's age and crime severity more heavily than recidivism history. These findings align with other studies showing that older juveniles are viewed as more culpable and deserving of punishment (Ghetti

and Redlich 2001; Greene and Evelo 2013). Respondents were also more likely to support transferring a 16-year-old to adult court for killing a stranger than a 14-year-old (Stalans and Henry 1994). Collectively, these studies highlight how perceptions of culpability are shaped by chronological age and by the interpretive frames that accompany it.

Framing effects related to juvenile maturity may therefore play a crucial role in shaping public attitudes towards sentencing. Research shows that even parents struggle to accurately evaluate their adolescents' maturity (Galambos *et al.* 2003), suggesting that the general public may be similarly influenced by how maturity is framed. Building on these insights, this study incorporates both objective measures of age and subjective framing—contrasting "individual under the age of 18" with "child"—to assess how public perceptions of culpability and punishment may shift. Drawing on framing theory, we hypothesize that the way juveniles are framed will significantly influence support for harsh or lenient sentencing.

H_1: Agreement for harsher sentences will be lower for a juvenile described as a child in a murder case compared to an individual under the age of 18.

The study's first hypothesis is guided by the legal principle of *doli incapax*, which presumes that children lack the maturity and intent—*mens rea*—necessary to be held criminally responsible for their actions, even if they are capable of causing harm. This principle aligns with framing effects, as the portrayal of juveniles as "children" may activate moral considerations and lead to greater leniency in sentencing. The emotional and symbolic framing of juveniles as "children" may thus be more influential than rational or evidence-based arguments.

The second hypothesis examines how neurodevelopmental considerations influence public views on exculpating young murder offenders from responsibility due to their (in)ability to form *mens rea*, or criminal intent. When psychological explanations are presented, the public tends to adopt less punitive views, assigning less responsibility, and favouring more lenient sentencing and rehabilitative approaches (Aspinwall *et al.* 2012). This aligns with framing theory, as neuroscience-based explanations could also serve as an emotional or symbolic appeal, shifting perceptions of culpability (Weisberg *et al.* 2008). Neuroscience information can influence public opinion by appealing to lay audiences as credible, regardless of its relevance. Applegate and Davis (2006) suggested that weak associations between public attitudes and sentencing options for juvenile murder offenders might be due to insufficient communication regarding their psychosocial maturity. We aim to address this by emphasizing the juvenile's psychosocial maturity through their (neuro)development:

H_2: Agreement for harsher sentences will be lower for a juvenile described as an individual under the age of 18 when preceded by the science prompt compared to when the science prompt is not provided.

Data, method, and analysis

This research surveyed 1,193 U.S. adults through a representative online panel of respondents to explore public opinions on sentencing juveniles involved in murder cases. Conducted

on July 18, 2024, interested respondents were provided informed consent and were free to skip any question or leave the survey at their discretion. Recruitment utilized the company's—Prolific—stratified sampling approach to create a representative online panel of individuals aged 18 and older living in the U.S. that relied on census and electoral data. Respondents undergo a rigorous recruitment process, which can take several months, requiring verification of identity, proof of residency, and confirmation of key sociodemographics. Respondents were compensated at an average rate of approximately $10.00 per hour, and the median completion time for the survey was 13 minutes and 34 seconds, including those who paused and later resumed. The survey included additional items unrelated to the present study, which contributed to the observed completion time. To ensure data quality and respondent engagement, three attention checks were distributed throughout the instrument; pass rates were consistently high (greater than 95%). Respondents who failed attention checks were excluded from the analytic sample. Ethical approval was granted by the Institutional Review Board of Sam Houston State University.

The stratified sampling method ensured that the sample's sociodemographics aligned closely with the U.S. population. Prolific provided two stratification options for three sociodemographics: age, gender, and partisanship or race. Given the increasingly polarized nature of American culture and views on crime and justice (Vanderbei 2024), we prioritized partisanship over race. This stratification approach was used to improve the generalizability of the findings by ensuring that the sample reflected the demographic composition of the U.S. population.[2] To ensure data quality, sociodemographic responses were compared with previously collected data from the same company, and the results were identical.

The analysis proceeds with descriptive statistics and bivariate tests to offer an initial overview of how question wording influences views on the sentencing of juveniles who committed murder. We then employed Ordinary Least Squares (OLS) regression modelling to predict respondents' attitudes since the response options were based on a continuous agreement scale. These regression models included key sociodemographics as well-documented predictors in the sentencing scholarship and commonly controlled for in U.S. attitudinal research alongside a categorical variable representing the experimental conditions.

Experimental design

To assess how question wording impacts support for the sentencing of juveniles, this study implements an experimental survey design. The experiment was preregistered through the Center for Open Science: https://osf.io/93a6m/overview. The experiment was registered on 18 March 2024, prior to data collection. The experimental design consists of respondents receiving one of three distinct module prompts followed by a set of four questions. These prompts vary across the three modules. Table 1 displays the specific language used in each module's prompt. The first two modules differ only slightly in wording. The baseline module utilizes legal textual language and refers to "individuals under the age of 18," while the second module (Treatment 1, T1) replaces this phrase with "children." The third module (Treatment 2, T2), labelled "Scientific," also refers

[2] Stratification was limited to a fixed set of sociodemographic dimensions, and other characteristics, most notably education and income, were therefore not directly balanced at the sampling stage. If responsiveness to framing varies systematically within such traits, this may affect generalizability. To assess sensitivity to this limitation, we conducted robustness checks applying alternative weighting schemes that incorporated education and income, and these adjustments did not meaningfully alter the estimated framing effects across numerous specifications. Education and income are also included as covariates in all multivariate models.

Table 1 Conditions and their prompts

Condition	Prompt
Baseline—Under 18	We would like to ask your views regarding individuals under the age of 18 and the criminal justice system.
T1—Child	We would like to ask your views regarding children and the criminal justice system.
T2—Scientific	We would like to ask your views regarding individuals under the age of 18 and the criminal justice system. Research shows that the brain's pre-frontal cortex is not fully formed until an individual reaches their mid-20s in age. The pre-frontal cortex performs the tasks of reasoning, planning, judgment, and impulse control, which are necessities for independence. Brain development and the inability to fully perform activities associated with the pre-frontal cortex remain the main arguments for why individuals are not legally recognized as adults until the age of 18. In fact, a simple task like voting in an election is restricted until the age of 18 based on views of maturity related to brain development.

to "individuals under the age of 18" but includes additional language highlighting scientific research on brain development. This module explains how the pre-frontal cortex, which governs reasoning, planning, judgement, and impulse control, is not fully developed until the mid-20s. It suggests that this incomplete brain development affects juveniles' ability to make decisions, providing a scientific rationale for age-based legal differences in sentencing. Overall, we selected three framing conditions that balance conceptual relevance with methodological feasibility, although we recognize that additional terms could be explored in future research. A frequent shortcoming of experimental studies is excessive complexity; therefore, scholars should prioritize a limited number of treatments (Barasko *et al.* 2014). After accounting for item non-response and incomplete surveys, 396 respondents were assigned to the baseline module, 399 respondents to the child module, and 398 respondents to the scientific module.[3]

The experimental design minimizes contextual detail about the offence and offender. Rather than presenting respondents with a detailed vignette, the study isolates specific linguistic formulations commonly used in legal and policy discussions. This approach is theoretically motivated. Framing research demonstrates that even subtle wording differences can shape interpretation when individuals are asked to evaluate abstract policy questions (Chong and Druckman 2007; Hansen and Johansson 2023). By holding contextual information constant and sparse across conditions, the design prioritizes internal validity and isolates the causal effect of language itself, rather than allowing case-specific characteristics to dominate respondents' judgments (Barasko *et al.* 2014). In this sense, the study is

[3] Given the between-subjects experimental design with three conditions (baseline, child frame, and scientific frame) and a total sample size of 1,193 respondents, the study had sufficient power to detect small-to-moderate effect sizes. A priori, we aimed for at least 350 respondents per condition, yielding statistical power (≥ 0.80) to detect differences of approximately $d \approx 0.25$–0.30 in mean responses between conditions, assuming a conventional two-tailed $\alpha = 0.05$ threshold. Post hoc sensitivity analyses indicate that the achieved sample size allows detection of effect sizes of this magnitude, which aligns with theoretical expectations regarding the impact of wording on sentencing preferences.

Table 2 Statements of sentencing options by condition

Baseline—Under 18 & T2—Scientific
1. There should exist the possibility of sentencing an individual under the age of 18 who committed murder as an adult.
2. The maximum sentence an individual under the age of 18 who committed murder should receive is 15 years.
3. There should exist the possibility of sentencing an individual under the age of 18 who committed murder to life in prison.
4. There should exist the possibility of sentencing an individual under the age of 18 who committed murder to death.
T1—Child
1. There should exist the possibility of sentencing a child who committed murder as an adult.
2. The maximum sentence a child who committed murder should receive is 15 years.
3. There should exist the possibility of sentencing a child who committed murder to life in prison.
4. There should exist the possibility of sentencing a child who committed murder to death.

designed to estimate a baseline framing effect, capturing how terminology alone influences generalized sentencing preferences before additional contextual factors are introduced.

The module statements differ based on the language used in the corresponding prompts, as outlined in Table 2. In the baseline and scientific modules, the statements consistently refer to "individuals under the age of 18" when discussing sentencing options for juveniles convicted of murder. In contrast, the child module uses the term "child" in place of "individual under the age of 18." The core content of the statements remains the same across the modules, addressing 1. the possibility of adult sentencing, 2. a 15-year maximum sentence, 3. life imprisonment, and 4. the death penalty. The variation in wording between "individual under the age of 18" and "child" may affect how respondents perceive the culpability and appropriate sentencing of juveniles. This subtle shift in language reflects the experimental design's intention to explore how different framings may influence respondents' judgments about juveniles' criminal responsibility. The randomisation process ensured approximately equal proportions of respondents in each group.

Dependent variables

For each of the four sentencing options, across all three conditions, respondents were asked to indicate their level of agreement using the following instruction: "Please provide your level of agreement with the statements below on a scale from 0 = greatly disagree to 10 = greatly agree (5 = neutral)." These responses captured the level of support for each sentencing option applicable to the juvenile involved in a murder case.[4]

[4] Loftus and Zanni (1975) demonstrated that questions using the definite article "the" led to greater inaccuracies compared to those containing the indefinite article "a" or "an" that generalizes an event–the generalized indefinite article was adopted for the present study when characterizing the juvenile.

Table 3 Mean responses of agreement to sentencing options for juvenile murderers

Sentence	B—Under 18	T1—Child	T2—Scientific
As an adult.	7.18 (2.92)	6.40* (2.96)	6.89 (2.67)
Maximum of 15 years.	3.84 (3.00)	4.25* (2.76)	4.19 (2.71)
Life in prison.	6.11 (3.24)	5.36* (3.24)	6.05 (3.02)
To death.	4.15 (3.54)	3.07* (3.24)	3.91 (4.32)

Standard deviations in parentheses.
0 = greatly disagree to 10 = greatly agree (5 = neutral).
$^{*}p < 0.05$, $^{**}p < 0.01$.
Statistically significant differences use "individual under the age of 18" as the reference group. Differences are estimated using bivariate linear regression models; equivalent *t*-tests yield identical significance conclusions.

Independent variables

In addition to sociodemographics such as age, gender, race, education, and income, two attitudinal variables (political ideology and partisan affiliation) are incorporated into the study's models to explore how different question formulations shape opinions on juvenile sentencing for murder (see Supplementary File). Respondents' self-reported political ideology was measured on a left-right scale. It is anticipated that individuals who identify as more liberal will be more likely to endorse the lenient sentence (a maximum sentence of 15 years) and less inclined to endorse harsher sentences. Further, it is expected that Democrats will show less support for strict sentencing while Republicans will express greater support. In this analysis, respondents who indicated that they lean towards a party were classified as identifiers with that party. This approach was chosen to avoid inflating the effects of partisanship by focusing only on strong identifiers.

Results—descriptive statistics

The results in Table 3 reveal how wording significantly influenced respondents' agreement with sentencing juveniles in murder cases, providing varying levels of support for the hypotheses. The findings were compelling for H_1, which posited that using the term individual under the age of 18 would lead to greater support for harsher sentences compared to the term child. Respondents were significantly ($p < 0.01$) less supportive of sentencing a child as an adult ($M = 6.40$) than an individual under 18 ($M = 7.18$). By contrast, there was significantly ($p < 0.05$) more agreement with a 15-year maximum sentence when referring to a child ($M = 4.25$) compared to the baseline term ($M = 3.84$), indicating that the child framing led to greater support for leniency. In a similar vein, the term child demonstrated significant ($p < 0.01$) reductions in support for harsher sentences such as life imprisonment (0.75 point gap) and the death penalty (1.08 point gap). The results reinforce the notion that minor alterations of language could play a critical role in shaping attitudes towards the sentencing of juveniles who committed murder.

For H_2, which predicted that a scientific prompt would lead to less agreement with harsh sentences and more support for a maximum sentence compared to the baseline, the results were not supportive of the hypothesis. The results indicate that the scientific frame had no statistically significant effect on the mean values for attitudes towards youth sentencing. Respondents exposed to the scientific prompt showed a slight reduction in support for

sentencing juveniles as adults ($M = 6.89$) compared to the baseline ($M = 7.18$), but this difference was not statistically significant. Similarly, while support for a 15-year maximum sentence increased modestly under the scientific prompt ($M = 4.19$) compared to the baseline ($M = 3.84$), the difference was not statistically significant. Additionally, differences in support for harsher sentences, such as life in prison or the death penalty, were substantively small and not statistically significant. These findings suggest that while scientific framing may modestly reduce support for harsher sentences, the effect was neither significant nor as pronounced as the effect of using the term child. In summary, H_1 was well-supported by the data, while H_2 was not supported.

Results—regression analysis

The sociodemographics in the regression analyses reveal varying effects on respondents' agreement with the sentencing options for juveniles who committed murder (see Table 4). While the primary focus of this study is on the experimental conditions, the multiple regression analyses provide additional perspective on how individual characteristics may shape these sentencing attitudes. Gender plays a significant role, with women generally showing less support for harsher sentences. Specifically, women are significantly less likely to agree with sentencing juveniles as adults (-0.42, $p < 0.05$), life imprisonment (-0.80, $p < 0.01$), and the death penalty (-0.96, $p < 0.01$). Race also plays a significant role, with White respondents expressing significantly less agreement with a 15-year maximum sentence (-0.61, $p < 0.05$) and harsher sentences, including sentencing as an adult (-0.42, $p < 0.01$) and the death penalty (-0.84, $p < 0.01$) than their non-White respondents. Education shows a small but significant ($p < 0.05$) effect on support for life imprisonment, with higher education levels associated with less support for this harsh sentence. Age and income, however, do not show statistically significant effects across the different sentencing options, indicating that these sociodemographics do not play a large role in shaping sentencing opinions in this context.

Political ideology also influences respondents' views on sentencing juveniles in murder cases, with more conservative ideologies showing consistent, significant effects of greater agreement for harsher sentences. Those identifying as more conservative are significantly ($p < 0.01$) more likely to support sentencing juveniles as adults, life imprisonment, and the death penalty. However, political ideology does not have a significant effect on support for a maximum 15-year sentence. When examining responses from respondents who received only the science prompt, the results indicate that conservatives were particularly unaffected by this framing. Partisan identification does not have a statistically significant effect across any of the sentencing options. These results demonstrate that political ideology has a greater impact on views about the sentencing of juveniles than party identification, suggesting that partisan alignment has not yet influenced public opinion on juvenile sentencing options for murder.[5]

[5] To assess the impact of including both political ideology and partisanship, we conducted additional analyses omitting ideology from the models. When political ideology is excluded, partisan differences emerge more clearly, with Republicans significantly more likely than Democrats to support trying a juvenile as an adult, sentencing them to life in prison, and imposing the death penalty. The results are similar when predicting attitudes for respondents who received the science prompt. However, the effect sizes remain smaller than those observed for ideology in the full models, reinforcing that ideological orientation is the stronger predictor of sentencing preferences. These findings suggest that while partisanship influences attitudes, ideology provides a more consistent explanatory framework for variation in public opinion on juvenile sentencing.

Table 4 Models predicting agreement to sentencing options for juvenile murderers

	As adult	Max 15 years	Life in prison	To death
Constant	7.16**	4.18**	6.20**	4.84**
	(0.39)	(0.39)	(0.42)	(0.45)
Age	0.00	0.00	−0.00	−0.01
	(0.01)	(0.01)	(0.01)	(0.01)
Woman	−0.42*	0.26	−0.80**	−0.96**
	(0.16)	(0.16)	(0.18)	(0.19)
Race—White	−0.42*	−0.61**	−0.15	−0.84**
	(0.19)	(0.19)	(0.20)	(0.22)
Education	−0.18	0.08	−0.22*	−0.11
	(0.09)	(0.09)	(0.10)	(0.11)
Income	0.02	−0.01	0.00	−0.01
	(0.03)	(0.03)	(0.03)	(0.03)
Political Ideology	0.20**	−0.08	0.20**	0.23**
	(0.04)	(0.04)	(0.05)	(0.05)
Party ID—Independent	−0.08	−0.14	0.07	−0.14
	(0.23)	(0.23)	(0.25)	(0.27)
Party ID—Republican	−0.01	−0.07	0.22	0.63
	(0.30)	(0.30)	(0.33)	(0.35)
T1 - Child	−0.90**	0.47*	−0.87**	−1.25**
	(0.20)	(0.20)	(0.22)	(0.23)
T2 - Scientific	−0.35	0.42*	−0.14	−0.34
	(0.20)	(0.20)	(0.22)	(0.23)
Observations	1,193	1,193	1,193	1,193
R^2	0.07	0.03	0.08	0.12
Adjusted R^2	0.06	0.02	0.07	0.11

Standard errors in parentheses.
*$p < 0.05$, **$p < 0.01$.

The treatment effects reveal strong and statistically significant differences across the experimental conditions. The "child" treatment (T1) has a powerful effect, leading to significantly less agreement with sentencing juveniles as adults, life imprisonment, and the death penalty ($p < 0.01$). On average, the size of the effect ranges from almost a full point (−0.87) to one and a quarter points. The child treatment was also associated with almost a half-point increase in support for a maximum 15-year sentence ($p < 0.05$). To further demonstrate the substantive impact of the treatments, we plot predictions for agreement with the statements based on the module the respondents received in Figure 1. The predictions were calculated holding all other variables at their median values. The plots show that, for the average respondent, gaps of at least a half a point exist for all three of the harsh sentencing options.

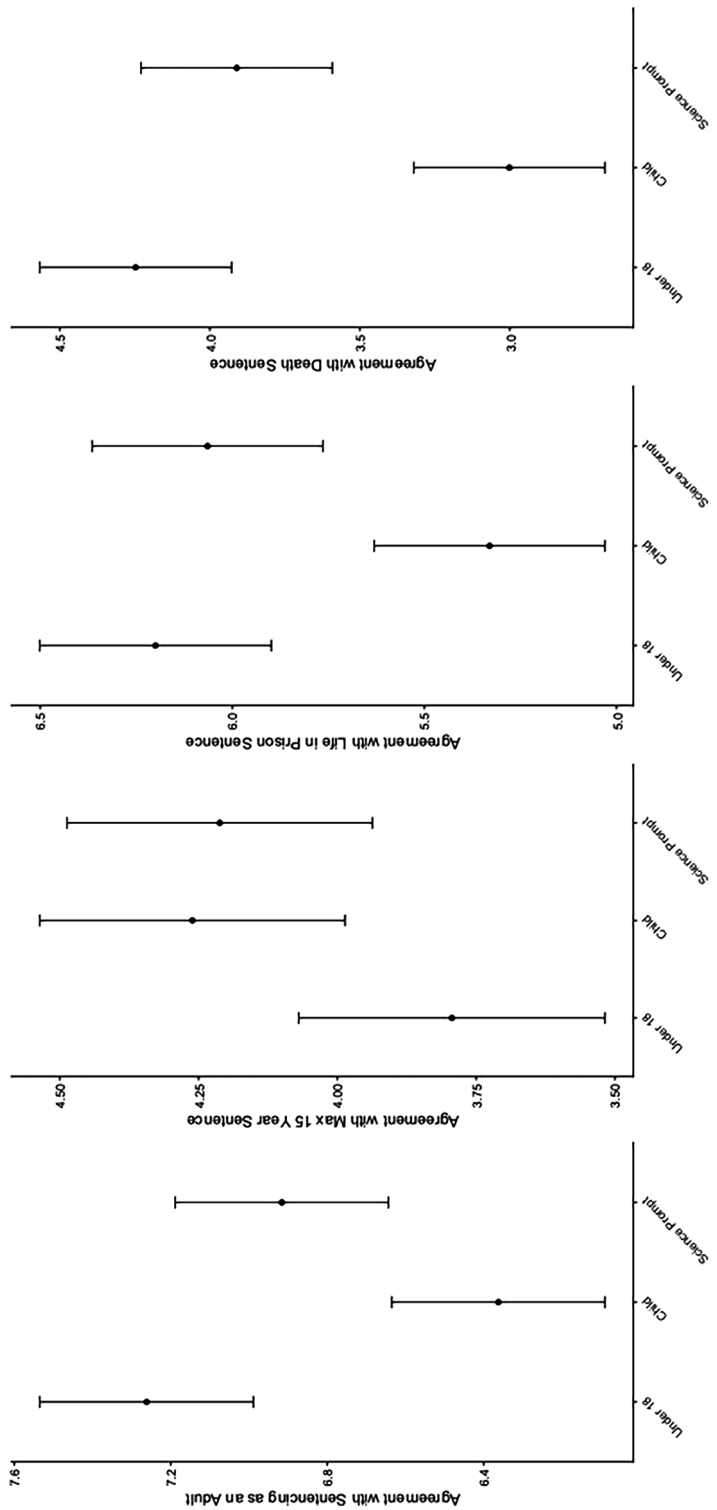

Fig. 1 Prediction plots of sentencing options for juvenile murderers by condition. 0 = greatly disagree to 10 = greatly agree (5 = neutral). Predictors held at median values; 95% confidence bounds displayed

The result confirms that framing juveniles as "children" reduces support for harsher punishments. When investigating the impact of the treatment further, it was uncovered that the treatment could be partially explained by a conditional relationship with gender. To assess whether these patterns differed by gender, we estimated separate models within each experimental condition while controlling for the full set of covariates (see Tables A1 and A2). Across conditions, women were generally less supportive of harsher punishments, including sentencing juveniles as adults, life imprisonment, and the death penalty. However, the magnitude and statistical significance of the gender coefficient varied by framing. In the "child" condition, the gender difference in support for sentencing juveniles as adults and for life imprisonment was smaller and not statistically significant, and the gender gap for the death penalty was weaker than in the baseline condition. These patterns suggest that the "child" framing modestly attenuated gender differences in support for the harshest sentencing options, although this reduction is not uniformly observed across all outcomes.

There was one instance where the "science" treatment (T2) had a statistically significant effect, though less pronounced. Respondents exposed to the scientific framing were more likely to agree with a maximum 15-year sentence by almost half a point ($p < 0.05$). However, the substantive effect of this variable when calculating predictions, holding all other variables at their median values, was quite small. In addition, the prompt did not significantly affect their views on other sentencing options. This suggests that scientific explanations about juvenile brain development do not necessarily lead to attitudes towards leniency in their sentencing.

Discussion

This study contributes to understanding how framing and question wording shape public attitudes towards sentencing juveniles for serious crimes such as murder. The results show that framing juveniles as "children" substantially reduces support for harsh punishments, including adult sentencing, life imprisonment, and the death penalty, while increasing support for more lenient options such as a maximum 15-year sentence. In contrast, the scientific framing that emphasized brain development produced only modest increases in support for leniency and did not significantly reduce preferences for harsher punishments. These findings indicate that public opinion on juvenile sentencing can be responsive to linguistic framing in survey and policy contexts.

One possible explanation is that emotionally evocative frames, such as describing an offender as a "child," are more persuasive than rational or evidence-based frames. Research on framing effects demonstrates that moral and symbolic arguments often resonate more strongly with the public than empirical or technical explanations (Dunbar 2022). For instance, Hansen and Johansson (2023) find that traditional moral framings remain deeply ingrained in public attitudes towards crime policy, even as evidence-based narratives gain traction. Similarly, labelling studies show that the words used to describe offenders influence perceptions of culpability and punishment, with more humanizing descriptions reducing support for punitive measures (Denver *et al.* 2024). In this study, referring to juveniles as "children" likely triggered associations with innocence and vulnerability, leading to greater resistance to harsh punishments. In contrast, the scientific framing, although grounded in developmental neuroscience, may have seemed abstract or disconnected from respondents' moral intuitions. These findings align with earlier research showing that emotionally charged frames tend to have greater persuasive power than purely empirical claims (Lee *et al.* 2022).

Taken together, these results reinforce the importance of framing in shaping public attitudes towards juvenile justice. They suggest that developmental language emphasizing immaturity and potential for reform can shift public opinion more effectively than scientific evidence alone. Although the present study captures broad policy orientations rather than judgements about specific cases, such attitudes may nonetheless shape the legal and political context in which sentencing decisions occur, including how jurors interpret legal arguments, how judges communicate sentencing rationales, and how sentencing practices are perceived as legitimate, particularly in serious cases such as homicide.

Nevertheless, several limitations warrant consideration. First, the study captures generalized sentencing preferences rather than judgements about specific case details. Respondents were not provided with contextual information about the offender or the circumstances of the homicide. Therefore, the findings reflect baseline reactions to linguistic framing rather than fully specified sentencing decisions. Although this design strengthens internal validity by isolating wording effects, it does not reproduce the complexity of courtroom deliberation or jury evaluation. Second, the neuroscientific condition included more informational content than the alternative conditions, creating asymmetry in the amount of detail presented. While this was intended to test whether scientific explanations alter sentencing preferences, future research could vary terminology and informational depth independently. Lastly, the explained variance in the models is modest, as is common in survey experiments that isolate single framing manipulations. The results should therefore be interpreted as evidence of incremental shifts in generalized public reasoning rather than comprehensive predictors of sentencing outcomes.

Future work

Public attitudes towards juvenile sentencing, including the range of available options, can be influenced by how additional and alternative sentences are presented and the order in which they are introduced. For example, in Applegate and Davis's (2006) study, no Floridian respondent chose the death penalty when presented with a hypothetical juvenile charged with attempted murder or manslaughter among 12 other sentencing options. In a similar vein, intraracial and interracial homicides by juveniles may exhibit different patterns towards sentencing options, as attitudes towards juvenile punitiveness are likely influenced more by their race and ethnicity than by juvenility itself (Pickett and Chiricos 2012; Pickett *et al.* 2014). Finally, in addition to suggesting the need for replication and further factorial designs with more sentencing options, particularly those that emphasize leniency, these findings also point to the potential impact of second look sentencing laws (see Hannan *et al.* 2023), which may have a pronounced effect on younger offenders.

Conclusion

Overall, these findings demonstrate the importance of language in debates on juvenile sentencing for violent offenders who committed murder. Practically, advocates for leniency or rehabilitation may find it more effective to rely on developmentally resonant language, as it is more likely to shift public opinion in favour of more lenient sentencing. While technical

or scientific terms in this context are valuable, they may need to be combined with developmental appeals to fully engage the public and generate support for juvenile justice reform. While our findings suggest that framing juveniles as "children" reduces support for harsher sentencing, we suspect that this framing could also influence juror decision-making. For defence lawyers, framing the juvenile offender as a "child" while emphasizing developmental immaturity and potential for reform may influence jurors to view the offender more sympathetically, leading to recommendations for less severe sentences. However, as our study does not directly test this effect in a legal setting, future research should examine whether and how such framing strategies impact jury perceptions and sentencing recommendations.

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Appendix A

Variable coding

Age–continuous, respondent's age

Gender–binary, 0 = man; 1 = woman

Race–binary, White = 1; Other races = 0

Education–continuous, 0 = did not graduate from high school; 1 = high school graduate/GED; 2 = some college, but no degree (yet); 3 = 2-year college degree; 4 = 4-year college degree; 5 = postgraduate degree; 6 = doctorate

Income–continuous, 0 = Less than $10,000; 1 = $10,001—$20,000; 2 = $20,001—$30,000; 3 = $30,001—$40,000; 4 = $40,001—$50,000; 5 = $50,001—$60,000; 6 = $60,001—$70,000; 7 = $70,001—$80,000; 8 = $80,001—$90,000; 9 = $90,001-$100,000; 10 = $10,001 - $150,000; 11 = greater than $150,001

Partisan Identification–nominal, Democrat; Independent; Republican; Respondents who indicated they leaned towards a party on the 8-category variable (strong Democrat, Democrat, lean Democrat, Independent, lean Republican, Republican, strong Republican, Something Else) were coded as partisans. This choice was made to avoid inflating the effect of partisanship and to produce a more cautious partisanship estimate. 'Something Else' was coded as Independent, which is common in political science research.

Political Ideology–continuous 10-point scale, 0 = very liberal to 10 = very conservative

Additional sample information[6]

Race—Respondents were asked about the racial group most identified with: 72% White, 16% Black, 4% Hispanic, 6% Asian, and 3% other.

Region—Respondents were asked the region they were from: 20% Midwest, 21% Northeast, 42% South, 18% West.

[6] Percentages for race and region sum to 101% due to rounding to the nearest whole number.

Descriptive statistics—independent variables

Variable	Min	Median	Mean	Max	SD
Age	18	46	46.25	88	16.10
Education	0	3	2.56	4	0.94
Income	0	6	6.06	11	3.38
Political Ideology	0	5	4.75	10	3.00
Variable	**Dem**	**Ind**	**Rep**		
Party ID	37.10%	27.88%	35.02%		
Variable	**Men**	**Women**			
Gender	49.12%	50.88%			
Variable	**Non-White**	**White**			
Race	28.46%	71.54%			

Models for questions by conditions

Table A1 Models predicting "as adult" and "max 15 years" by condition

	As adult			Max 15 years		
	Under 18	Child	Science	Under 18	Child	Science
Constant	7.13**	6.18**	7.06**	3.78**	5.14**	4.53**
	(0.64)	(0.66)	(0.66)	(0.67)	(0.63)	(0.67)
Age	0.01	−0.00	0.00	−0.00	−0.00	0.02*
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Woman	−0.83**	−0.13	−0.25	0.36	−0.05	0.42
	(0.29)	(0.29)	(0.26)	(0.30)	(0.28)	(0.27)
Race—White	−0.18	−0.39	−0.73*	−0.53	−0.16	−1.17**
	(0.33)	(0.33)	(0.31)	(0.34)	(0.32)	(0.32)
Education	−0.20	−0.22	−0.13	0.31	0.05	−0.09
	(0.17)	(0.17)	(0.16)	(0.18)	(0.16)	(0.16)
Income	0.02	0.05	−0.01	0.00	−0.09*	0.06
	(0.05)	(0.05)	(0.04)	(0.05)	(0.05)	(0.04)
Political ideology	0.14*	0.23**	0.21**	−0.04	−0.01	−0.15*
	(0.07)	(0.08)	(0.07)	(0.08)	(0.07)	(0.07)
Party ID—independent	0.16	−0.15	−0.22	−0.30	−0.08	−0.15
	(0.40)	(0.42)	(0.37)	(0.42)	(0.40)	(0.38)
Party ID—republican	0.29	−0.22	−0.06	−0.42	−0.34	0.30
	(0.54)	(0.55)	(0.47)	(0.57)	(0.52)	(0.48)
Observations	396	399	398	396	399	398
R^2	0.07	0.06	0.06	0.03	0.02	0.07
Adjusted R^2	0.05	0.04	0.04	0.01	−0.00	0.05

Standard errors in parentheses.
$^{*}p < 0.05$, $^{**}p < 0.01$.

Table A2 Models predicting "life in prison" and "to death" by condition

	Life in prison			To death		
	Under 18	**Child**	**Science**	**Under 18**	**Child**	**Science**
Constant	5.80**	4.92**	6.99**	5.03**	3.29**	4.88**
	(0.70)	(0.72)	(0.74)	(0.76)	(0.71)	(0.82)
Age	0.00	0.00	−0.01	−0.01	−0.01	−0.01
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Woman	−0.84**	−0.56	−0.92**	−1.25**	−0.76*	−0.81*
	(0.31)	(0.32)	(0.30)	(0.34)	(0.32)	(0.33)
Race—White	0.21	−0.21	−0.44	−0.32	−0.89*	−1.29**
	(0.36)	(0.36)	(0.35)	(0.39)	(0.36)	(0.39)
Education	−0.30	−0.26	−0.16	−0.28	−0.07	−0.03
	(0.18)	(0.18)	(0.18)	(0.20)	(0.18)	(0.20)
Income	−0.00	0.09	−0.06	−0.02	0.05	−0.06
	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)
Political ideology	0.27**	0.20*	0.12	0.22*	0.32**	0.15
	(0.08)	(0.08)	(0.08)	(0.09)	(0.08)	(0.09)
Party ID—independent	0.14	−0.17	0.22	−0.07	−0.33	−0.02
	(0.44)	(0.46)	(0.42)	(0.47)	(0.45)	(0.47)
Party ID—republican	−0.11	0.13	0.71	1.14	−0.54	1.42*
	(0.59)	(0.59)	(0.53)	(0.63)	(0.59)	(0.59)
Observations	396	399	398	396	399	398
R^2	0.10	0.06	0.07	0.14	0.09	0.12
Adjusted R^2	0.08	0.04	0.05	0.12	0.07	0.10

Standard errors in parentheses
$^{*}p < 0.05$, $^{**}p < 0.01$.

Appendix B

Pre-registration

Title: Question Framing and Support for the Incarceration of Minors
Registration: Preregistered on the Open Science Framework prior to data collection (https://doi.org/10.17605/OSF.IO/93A6M).

Hypothesis

Support for harsh incarceration sentences for minors will be impacted by question framing. In particular, prompts that include scientific information regarding how minors' pre-frontal cortex, which performs the tasks of reasoning, planning, judgement, and impulse control, will lead to less support for harsher sentences.

Study design

This study was preregistered as an experiment. Respondents were randomly assigned to receive one of three treatments asking about agreement with statements regarding the incarceration of minors for murder:

1. Individuals under the age of 18
2. A child
3. Individuals under the age of 18, including a scientific prompt

Participants were blinded to treatment assignment.

Randomization was conducted using simple random assignment.

Sampling plan

The survey was created in Qualtrics survey software and distributed through Prolific to obtain a nationally representative U.S. sample. Respondents were compensated above the U.S. federal minimum wage at an average of $9.17 per hour. Data collection continued until approximately 1,000 responses were obtained.

Manipulated variable

The manipulated variable was the framing used when asking about the incarceration of minors who committed murder.

Set 1: Individuals under the age of 18

Respondents were asked to indicate agreement (0 = greatly disagree to 10 = greatly agree) with the following statements:

- There should exist the possibility of sentencing an individual under the age of 18 who committed murder as an adult.
- The maximum sentence an individual under the age of 18 who committed murder should receive is 15 years.
- There should exist the possibility of sentencing an individual under the age of 18 who committed murder to life in prison.
- There should exist the possibility of sentencing an individual under the age of 18 who committed murder to death.

Set 2: Child

Respondents were asked to indicate agreement (0 = greatly disagree to 10 = greatly agree) with the following statements:

- There should exist the possibility of sentencing a child who committed murder as an adult.
- The maximum sentence a child who committed murder should receive is 15 years.
- There should exist the possibility of sentencing a child who committed murder to life in prison.
- There should exist the possibility of sentencing a child who committed murder to death.

Set 3: Scientific prompt

Respondents first received the following information:

Research shows that the brain's pre-frontal cortex is not fully formed until an individual reaches their mid-20s in age. The pre-frontal cortex performs the tasks of reasoning, planning, judgement, and impulse control, which are necessities for independence. Brain development and the inability to fully perform activities associated with the pre-frontal cortex remain the main arguments for why individuals are not legally recognized as adults until the age of 18. In fact, a simple task like voting in an election is restricted until the age of 18 based on views of maturity related to brain development.

They were then asked to indicate agreement (0 = greatly disagree to 10 = greatly agree) with the same four sentencing statements used in Set 1.

Measured variables

Control variables included age, gender, race, education, income, political ideology, partisanship, residence, and political interest.

Analysis plan

The preregistered analysis specified multiple regression models estimating the effect of framing condition on support for sentencing outcomes, accounting for the experimental manipulation and control variables.

Notes

The study was registered prior to data collection.

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