Treating Emerging Adults Differently: How Developmental Science Informs Perceptions of Justice Policy

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Abstract

Several states have proposed changes to how their legal system responds to young or emerging adults. Scholars, policy makers, and advocates have highlighted the developmental and behavioral similarities between juvenile and emerging adults when arguing that emerging adults should be treated differently from adults. This experimental study relies on data from 277 participants recruited via Amazon Mturk to examine how lay people respond to the presentation of developmental science evidence as support for such policy changes. The results indicate that science may be an effective tool for motivating some people's perceptions, but not all. Liberals who reviewed developmental science evidence were more likely to support general policy changes targeting emerging adults. Liberals were also more likely to find emerging adults less culpable after reviewing developmental science evidence. Moderates and conservatives were not responsive to developmental science evidence supporting policy change. Furthermore, while many were in favor of treating emerging adults differently than older adults, very few thought they should automatically be treated within the juvenile justice system.

Keywords

Juvenile justice, emerging adults, public policy

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In the majority of states, the maximum age of juvenile jurisdiction is 17-years-old (Teigen, 2020). Recent reforms have led several states such as North Carolina and New York to raise the maximum age of juvenile jurisdiction to 18-years-old; however, in places like Vermont, the maximum age of juvenile court jurisdiction has been expanded to include youth who are 18 and 19 years old (with juvenile supervision extending until age 21.5 years old; e.g., Act 201, 2018). At the time of this writing, several other states are actively considering similar policy changes that would extend the maximum age of juvenile jurisdiction to 19 or 20 (*e.g.,* in California, Connecticut, Illinois, and Massachusetts). These policy proposals are motivated in part by arguments highlighting the offending and developmental similarities that exist between older adolescents and emerging adults (ages 18-25). However, as science-based arguments are leveraged to support justice policy reforms, it remains unclear how community members will interpret the science and whether they will support policies to treat emerging adults differently based on developmental science evidence. The current study explores how individuals perceive these policy changes and whether those perceptions might be informed by developmental science evidence.

Developmental Science and Juvenile Justice Policy

The 1990s saw an increase in public fear of justice involved youth and support for harsher justice policies. The informal slogan of that era, "Adult Time for Adult Crime," illustrated the then popular belief that a new, more malicious, juvenile offender (*i.e.,* the superpredator) was on the rise (Krisberg, 2005) and deserved harsher sanctions (Levesque, 1996). Although juvenile crime decreased substantially beginning in 1995 (Snyder, 1997), opinion polls indicated that the majority of Americans believed juvenile crime was escalating (Dorfman & Schiraldi, 2001). Described as the "third wave" of juvenile justice reform (Fagan & Zimring, 2000), the 1990s saw two major changes in most state juvenile justice systems – increases in the availability of harsh, determinate sentences and expansions of the number and type of youth prosecuted in adult criminal court. The ability to prosecute youths in adult court gave judges and juries leeway to impose harsher sentences than is possible in most juvenile courts (Mulvey & Schubert, 2012).

In contrast to the policies of the 1990s, advances in developmental and neuroscience evidence have led to an increasingly accepted understanding that justice-involved youth should be treated differently from adults. Research on the age-crime curve demonstrates that offending rates increase during adolescence, peak around age 19 to 20, and then decrease thereafter (Loeber & Farrington, 2014). This curvilinear relationship between age and offending has been found consistently in the literature (e.g. Sweeten, Piquero & Steinberg, 2013) and is independent of contextual factors such as socioeconomic status (Shulman, Steinberg & Piquero, 2013). Additionally, advances in neuroscience have shown that the brain undergoes important changes during and beyond adolescence into early adulthood (Gogtay et al., 2004) that have important implications for youths' behavior and decision making. Taken together, these advances continue to have the potential to inform how the legal system responds to youths' behavior.

Coupled with the downward trend in juvenile crime rates, empirical evidence has influenced federal and state justice policies. For example, in *Roper v. Simmons* (2005), *Graham v. Florida* (2010), and *Miller v. Alabama* (2012), the Supreme Court limited the sentencing options youth are eligible for by eliminating the death penalty, life without parole for non-homicide crimes, and mandatory life without parole for homicide offenses, respectively, for those who committed crimes before the age of 18. Additionally, states considered legislation that increased the age in which youth may have their cases heard in juvenile court. Most recently, Vermont passed a law to incrementally increase the age of *youthful*

offenders to age 21 by July 2018 (Act 153, 2016). This would allow transfer or waiver decisions to be made on a case-by-case basis such that 20- and 21-year-olds may have their cases heard in juvenile court and provided with rehabilitative services instead of automatically being tried as adults. The law also includes plans to house *youthful offenders* separately from adults and younger youth. In response to the new law, Vermont's Department of Children and Families commissioner stated, "Vermont will now have a juvenile justice system that reflects the latest in brain development science" (Vermont Department for Children and Families, 2016). More recently, Vermont continued this effort by raising the age of juvenile jurisdiction to anyone younger than 20 (Act 201, 2018).

These new policies are not unique around the world. In the Netherlands, Finland, Sweden, and Switzerland, for example, young adults can be treated as juveniles or receive less harsh sanctions than adults until the age of 21 or even 25 (Hazel, 2008). Additionally, Farrington, Loeber, & Howell (2012) argue the United States should implement differential treatment not only for adolescents but also young adults. Specifically, if adolescents are able to be transferred to the adult court, they argue that young adults should be eligible to be tried, at least in some instances, in juvenile courts.

Perceptions of Juvenile Justice Policies

These policy proposals are often accompanied by campaigns to increase community support to raise the age of juvenile jurisdiction; however, research evaluating public support of differential responses to youthful offending has resulted in mixed findings over time. For example, studies conducted with mock jurors show age differences, while acknowledged, may not be perceived as a mitigating factor (Ghetti & Redlich, 2001). Ghetti and Redlich (2001) found that crime severity and outcome *(i.e.,* victim killed vs. injured), not the youthfulness of the offender, played key roles in determining sentence recommendations. In their study, mock jurors were willing to recommend that an 11-year-old serve the same sentence as a 17-year-old, even though they believed the younger defendant to be less able to appreciate the consequences of their actions and also less accountable for their actions. Ghetti & Redlich (2001) speculated that the perception that the youth had a criminal disposition, and therefore would continue to offend (*i.e.,* recidivate), led mock jurors to recommend equivalent sentences for the same offense regardless of age. Shortly after, another study found that mock jurors granted younger defendants (13 years old and 17 years old) shorter sentences than older (25 years old) defendants (Warling & Peterson-Badali, 2003). However, when asked to deliberate in a group as opposed to making individual decisions, those age effects were no longer significant.

Some evidence suggests that public perceptions might be turning away from treating youth as adults and leaning towards a more evidence-based approach that puts rehabilitation at the forefront of youth sentencing. Several studies post-*Roper* found that mock jurors preferred treating youth differently from adults (Piquero & Steinberg, 2010; Scott, Reppucci, Antonishak, & DeGennaro, 2006; Semple & Woody, 2011). Scott and colleagues (2006) found that community members perceived youth to be less culpable for their actions and more appropriately sentenced to a juvenile facility rather than an adult facility. Semple and Woody (2011) later showed that mock jurors found younger defendants (13- and 15-year olds) guilty for a serious crime less often than older defendants (17- and 21- year olds); however, once guilt was determined the defendant's age did not impact sentencing recommendations. Finally, in a study analyzing the public's willingness to pay for services, researchers found that the public was willing to pay approximately 20% more in taxes for rehabilitation services in lieu of long term stays in a jail facility (Piquero & Steinberg, 2010). These results coincided with public opinion surveys at the time that showed the public was recommending that juveniles be rehabilitated (Piquero & Steinberg, 2010). While the evidence suggests public perceptions may have become more in line with treating youth differently from

adults, to our knowledge there is no work examining how they might respond to proposals to treat young or emerging adults (ages 18 to 25) differently from older adults. Furthermore, while several states have attempted to extend policy changes to raise the age to include some emerging adults (*e.g.,* in Vermont to those under 21), other states have not been successful as of the time of this writing.

Can Developmental Science Inform Community Perceptions of Justice Policy?

Campaigns to *Raise the Age* of juvenile jurisdiction consistently rely on developmental and neuroscience findings to support their arguments that adolescents are unique and should be treated differently from adults. Scholars have also argued that setting the age boundary of juvenile jurisdiction at eighteen is somewhat arbitrary and not necessarily in line with developmental science. Evidence from these fields show that post-pubertal development involves important changes in the brain that continue until the mid-twenties (*e.g.,* Sowell, Thompson, Tessner, & Toga, 2001). The asymmetrical developmental trajectories of the cognitive control and emotion processing systems during this period typically coincide with short-sighted, impulsive decision making and risky behavior (Steinberg, 2007)**.** Arnett (2000), who proposed emerging adulthood as a distinct developmental stage, argued that while adolescence is indeed a time of increased risk taking, we also see an increase in a variety of risk taking behaviors between the ages of 18-25. Some of these include risky driving, binge drinking, and unprotected sex (Arnett, 2000). Given that these developmental changes and increased risk taking continue into the mid-twenties, some scholars have argued that, like adolescents, emerging adults should be provided with additional protections or should be treated differently from older adults (Farrington, Loeber, & Howell, 2012). While few scholars suggest the minimum age of adult jurisdiction should be raised to exclude young adults (e.g., Farrington, Loeber, & Howell, 2012; Pruin & Dunkel, 2015), others have argued that a developmentally informed approach supports a tailored response that recognizes young adults as different from both juveniles and older adults (Farrington, Loeber, & Howell, 2012; Steinberg, Grisso, Scott, & Bonnie, 2016; Scott, Bonnie, & Steinberg, 2016). While the limited success of proposals targeting young or emerging adults provides some insight to the public's perceptions of such policies, it is unclear how they might respond to treating this group differently from older adults or as juveniles.

The public's response to policies that treat young adults differently may be impacted by campaigns that rely on developmental science to support such changes. The Supreme Court and legislative decisions have relied on developmental science to inform juvenile sentencing policies in some instances, but it is unclear how, if at all, the public's perceptions of justice policy proposals will be impacted by scientific evidence. The American Academy of Arts and Sciences (AAAS, 2018) indicates that the public's trust in the science community is relatively high and stable across the United States but that more information is needed on how that trust relates to support for evidence-based policies. The AAAS' 2018 report also suggests that approximately 37% of the country believe research scientists cannot be impartial in describing science evidence to inform public discourse or policy and almost 50% of respondents indicated that scientists would be unwilling or unable to report findings that go against research funders.

Furthermore, while trust in science is relatively stable and high in the United States, some evidence suggests that it varies based on political ideology (AAAS, 2018). We conceptualize political ideology as a spectrum that ranges from conservative to liberal in line with other scholars (Ellis & Stimpson, 2012). Gauchat (2012) found that those who identify as politically conservative have shown a slow decrease in their trust in science while others' perspectives of science have remained relatively stable. Research into the public's confidence in relying on the scientific community to inform evidence-based policy has shown that those who identify as politically conservative report less confidence in the scientific community; their lack of confidence was partly attributed to conservatives' distrust of the relationship between science and

government (Gauchat, 2015). Others, however, suggest that the relationship between political ideology and trust in science is not unique to conservatives. Specifically, distrust in science develops when scientific evidence does not align with our previously held beliefs regardless of political ideology (Nisbet, Cooper, & Garrett, 2015). Taken together, it is reasonable to suggest that the relationship between political ideology and trust in science is important to understanding whether scientific evidence will motivate perceptions of and support for policy proposals.

The Current Study

Federal and state policy decisions, scholars, and public policy campaigns to *Raise the Age* of juvenile jurisdiction have relied on developmental science evidence; however, it is unclear whether the public would support changes to how young adults are treated based on developmental science evidence. The current study examines perceptions of recent policy proposals to treat young adults differently and explore whether presenting developmental science to support those proposals alters public perceptions surrounding these issues. First, we explore whether there is support for treating emerging adults differently than adults. Then, we test if the presentation of scientific evidence increases the approval of policy proposals that treat emerging adults differently from older adults. Further, given that developmental science evidence suggests there are relevant ongoing developmental changes during emerging adulthood, we examine whether those presented with developmental science evidence find defendants to be less culpable than participants who did not review the scientific evidence. Finally, we explore the relationship between the role of political ideology and the presentation of scientific evidence. Ultimately, we predict that developmental science evidence will inform perceptions of young or emerging adults and increase support for policy proposals to treat them differently from older adults but only for participants who identify as politically liberal.

Method

Participants

The current study was reviewed and approved by the Institutional Review Board at the first author's university. Participants were recruited from the online survey platform Amazon Mechanical Turk (Mturk). Participants were eligible to participate if they were 18 or older years of age and resided in the United States. The survey took approximately seven and a half minutes to complete on average and participants were paid $1.25 for participating, which results in an hourly rate of $10/hour. The final sample of participants (n = 277) was made up of those who passed all required attention and manipulation checks. All analyses were conducted on the final sample which was predominately White (79.8%; 10.5% Black; 6% Hispanic; 5.8% Asian), held a bachelor's degree (38.6%; 28.5% reported "some college"; 10% had completed high school or GED; 7.5% obtained doctoral or professional degrees) and were approximately 35 years old (M = 35.56, SD = 10.62, range = 21-70). There was an even gender divide among participants with 50.2% identifying as male. Roughly a third of participants had been the victim of a crime (33%), but only a few had ever been charged with a crime (9%). More respondents self-identified as liberal (48%) than as conservative (30.3%) or moderate (21.7%).

Measures

Demographics. Participants reported demographic information such as age, gender, race/ethnicity, level of education, contacts with the justice system, and their political ideology.

Crime severity and recidivism risk. Participants were asked to rate on a seven-point Likert-style question how serious they found the crime committed to be (1 = *not serious* to 7 = s*evere*) as well

as how likely they believed the defendant in the case to reoffend in the future (1 = *not at all likely* to 7 = *definitely*).

Perception of Culpability Questionnaire (Ghetti & Redlich, 2001). This scale originated from Ghetti & Redlich's (2001) study examining perceptions of youth crime and culpability. Participants are asked to select on a Likert-style scale ranging from 1 - 5 (1 = *strongly agree*; 5 = *strongly disagree*) how much they agree with a series of nine statements about the defendant. For example, one item states, "The defendant should be considered fully responsible for his actions" or "The defendant is likely to commit a crime again". Several items are reverse scored. The scale had high internal reliability (α = .81).

Belief in science scale (Farias, Newheiser, Kahane, & de Toledo, 2013). This scale assesses participants' ideas about the validity of science. For example, the scale contains questions such as, "Science tells us everything there is to know about what reality consists of" and "The scientific method is the only reliable path to knowledge". The original scale is made up of the average of ten items with responses on a six-point scale (1 = *strongly disagree* to 6 = *strongly agree*), but we used a shortened seven-item scale. The scale had high internal reliability (α = 0.92). Overall, the sample reported low-to-moderate levels of belief in science (M = 2.62, SD = 1.07).

Manipulation checks. Throughout the survey, participants were asked to select a certain response if they were actively engaged. Forty-four respondents missed one or more of these manipulation checks and were not included in the final sample or subsequent analyses.

Procedure and Design

This study protocol follows a 4 (Developmental Science, Crime Trend, Innocuous Control, Control) x 2 (Felony vs. Misdemeanor) mixed factorial design. All participants were randomly assigned to one of four conditions where they were presented with information about developmental science, current trends in criminal offending, or one of two control conditions. Participants then received a short description of proposed legislative changes to local juvenile justice policies followed by a series of questions regarding those policy changes (general policy section). Participants were also randomly assigned to read a vignette of a felony or a misdemeanor crime committed by a 20-year-old defendant and then proceeded to answer various questions about their perceptions of the defendant's level of culpability and how they believe they should be tried (individual case section). The order in which the policy section and the individual case section was presented was counterbalanced across participants.

Experimental Conditions. Participants were randomly assigned to one of four conditions: (1) developmental science condition, (2) crime trend condition, (3) innocuous control, or (4) control. In the developmental science condition, participants read about relevant developmental and neuroscientific findings regarding emerging adulthood and, specifically, focusing on aspects of emerging adulthood that are relevant to offending and risk-taking behavior (see Appendix A for stimuli associated with each condition) . In the crime statistics condition, participants read about data that shows a substantial decline in violent and property crime rates since their peak in the early 1990s. In the innocuous control, participants read about an unrelated book review and answered if they had ever read the book. This condition allowed the researchers to control for any effects that might be attributable to having participants in other conditions spend time reading an excerpt. In the final control condition, participants received no stimulus or vignettes before commencing the remainder of the study. There were no significant differences between the two control conditions on the dependent variables, therefore; we collapsed the two control groups into one and continued analyses with three experimental conditions.

Thus, the final groups were: (1) developmental science condition (n = 68), (2) crime trend condition (n = 76), and (3) control condition (n = 135).

Policy Change. All participants read a proposal on potential policy changes to handle young adults (under age 25) differently from adults (over age 25). The policy proposal is based on Farrington, Loeber, & Howell's (2012) policy recommendations regarding young adults. Three potential policy changes are described: (1) try young adults under 25 in juvenile court, (2) create a special court to handle those who are 18-24 years old, or (3) determine on a case-by-case basis if 18-24-year-olds are tried in juvenile or adult court. Following this vignette, participants were asked if they believe there should be a change to the way young adults are handled (yes or no). If they respond yes, then participants are given the chance to select a particular policy option from the three presented.

Individual Case. Participants read about a 20-year-old African American male that committed a felony armed robbery or a misdemeanor vehicular break-in (see Appendix B for exact vignettes). After reading either one of the individual case scenarios, participants were asked about the case itself (e.g., severity) and about how culpable they believed the young adult defendant to be. They were also asked in what court (juvenile, adult, or a special young adult court) they believe the defendant should be tried.

Felony condition. Participants read that the defendant entered a convenience store armed with a gun, threatened the store clerk with the gun, and demanded money from the register and safe. The store clerk gave the defendant approximately $1200. Before leaving, the defendant attacked the store clerk, tied their hands and feet, and trapped him in the store's utility closet. Two police officers arrested the defendant as he fled the scene on foot and the defendant confessed to the crime.

Misdemeanor condition. Participants read that the defendant broke into a vehicle parked on a residential street and proceeded to steal a laptop from inside the vehicle. A neighbor witnessed the defendant looking into multiple car windows and alerted the police that there may be a break in. Police responded to the area and witnessed the defendant as he fled the scene on foot; the defendant confessed to the crime.

Results

Statistical analyses confirmed that random assignment resulted in groups that did not differ significantly by age (F (3, 273) = 1.32 p =.27), gender, race/ethnicity, education, work status, past criminal charges, family criminal convictions, prior victimization, family victimization, belief in science, or political ideology (a series of X^2 analyses all resulted in nonsignificant findings, p > .05). Belief in science did vary by political group such that conservatives indicated the lowest belief in science (M = 2.7), followed by moderates (M = 3.3) and then liberals (M = 3.9). All groups were significantly different from each other (p<.001).

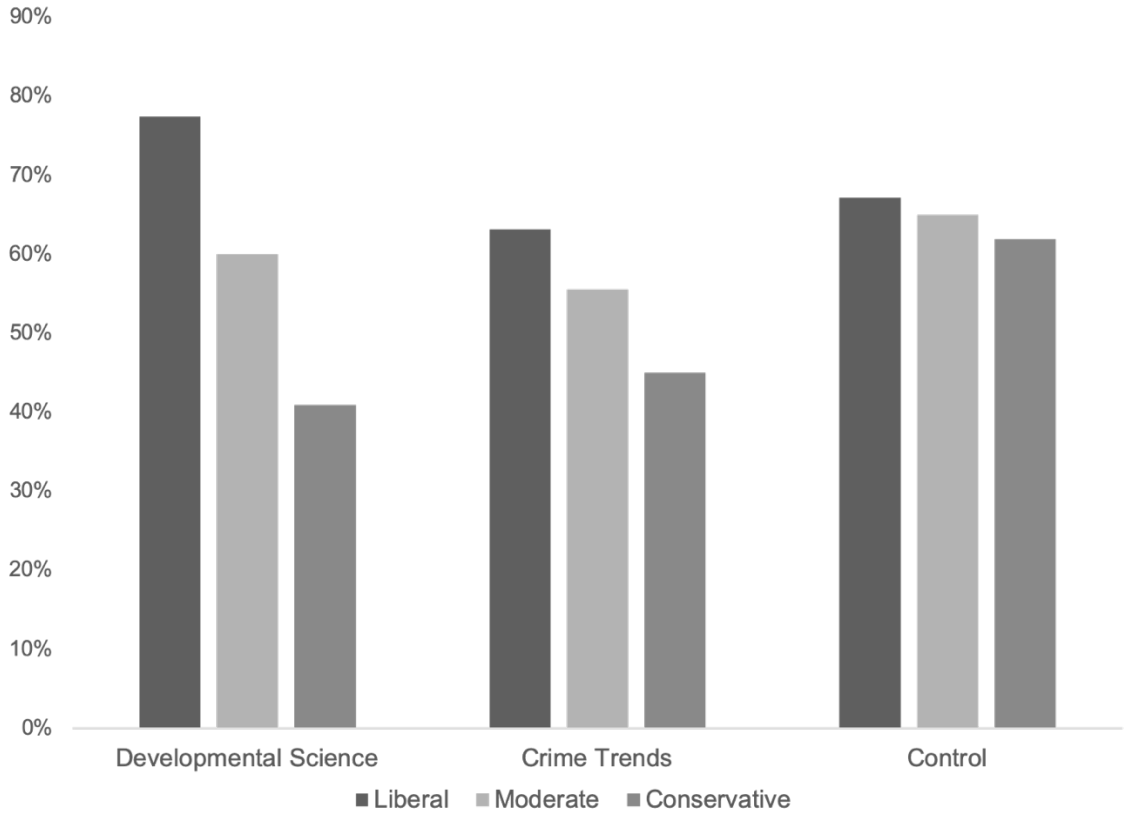
General Policy Change

Participants were asked whether they believed there should be any changes to the way the legal system currently responds to offenses committed by emerging adults. Overall, 60.3% (n=167) of participants indicated that they would be interested in changing current policies to allow emerging adults to be treated differently. We ran a logistic regression to test whether the presentation of scientific evidence (experimental condition) impacted overall perceptions of policy change. We regressed dichotomous policy change choices (yes/no) on experimental condition, political ideology, gender, race (white vs. non-white), education, and the interaction between experimental condition and political ideology. The interaction between experimental condition and political ideology significantly predicted support for policy change (OR = 4.31, p = .05) with liberals who reviewed developmental science evidence being more supportive than conservatives (Figure 1). Education was also a significant predictor of support,

such that those with a bachelors or four-year degree were about three times as likely than those with a high school diploma or less to want a policy change (OR = 2.97, p = .01).

Participants who indicated they were interested in policy change (60.3%; n=167) were then given the choice between three policy recommendations: (1) Charge young adults between the ages of 18 and 24 in the juvenile justice system; (2) Create a special court for young adults; (3) or determine on a case-by-case basis if 18-24-year-olds should be tried in juvenile or adult court. The majority of participants indicated a preference for transferring young adults on a case-by-case basis (46.7%), followed by the option to create a special young adult court (41.95%), and a small minority chose to keep young adults in juvenile court (11.4%).

Figure 1. *Proportion of Respondents in Each Experimental Group by Political Ideology Who Believed the Legal System Should Change How it Responds to Offenses Committed by Emerging Adults*

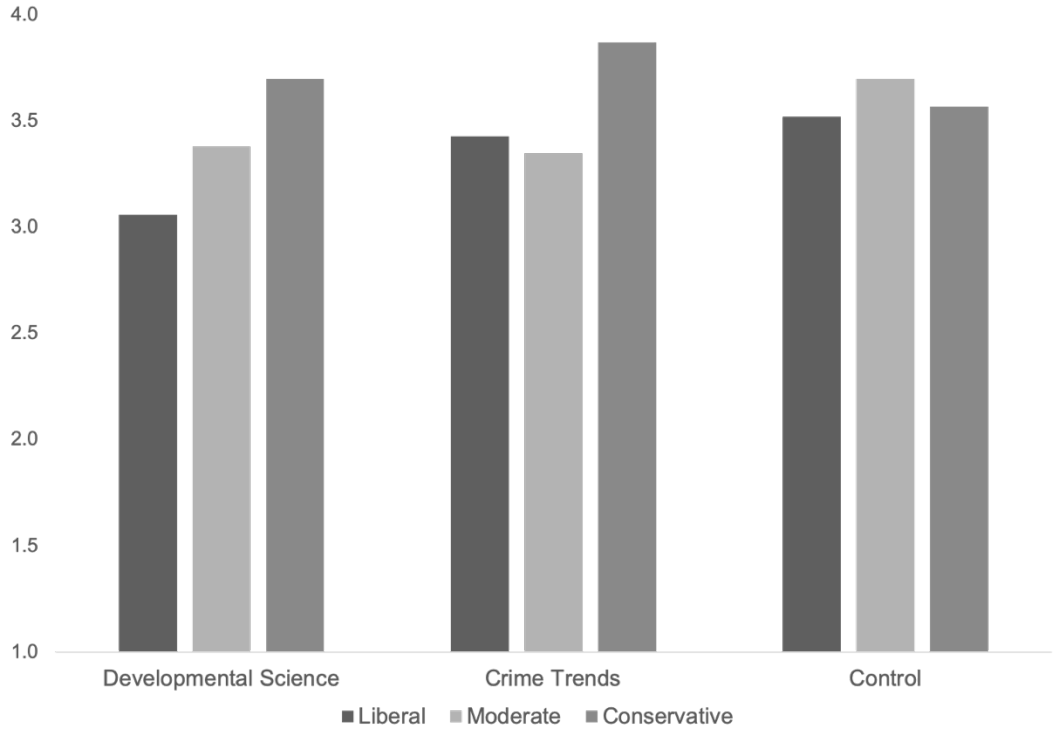


Individual Case

Participants were randomly assigned to read case facts for a felony or a misdemeanor crime. They were then asked how serious they found the crime to be and several questions about the individual's level of culpability. We ran a two-way factorial ANOVA to ensure that perceived crime severity varied by case type (felony vs. misdemeanor) and was not affected by the initial experimental manipulation (presentation of developmental science evidence or crime trend data). Indeed, severity only varied by case type (F (1, 271) = 119.05, p < .001). Perceptions of crime severity did not vary by evidence presentation or the interaction of case type and evidence presentation.

Participants were asked to indicate where they believed the young adult defendant should be tried: juvenile court, a special young-adult court, or in adult court. Most participants believed the defendant should either be tried in adult court (47%) or in a special young adult court (44%), which was similar to responses in the general policy section. Only nine percent of participants believed the defendant should be tried in juvenile court. Because so few selected the juvenile court option, we combine juvenile and young adult courts to represent proposed policy options for future analyses[1]. We ran a logistic regression to predict which court participants would recommend between adult court (current policy) and young adult or juvenile court (new proposals). We regressed court recommendation on case type (felony vs. misdemeanor), experimental condition (developmental science, crime trend, or control), the interaction between case type and experimental condition, political ideology, perceived culpability, gender, race, and education. The only significant predictors of court type were perceived level of culpability and gender. Participants who identified as male were more likely than women to recommend adult court (OR = 2.81, p = .006). Additionally, those who found the defendant to be more culpable were also more likely to recommend adult court (OR = 27.12, p < .001). Surprisingly, case type was not a significant predictor of court recommendation.

Figure 2. *Perceived Culpability Scores in Each Experimental Condition by Political Ideology*



Note. Higher scores indicate the participant perceived the defendant as more culpable for the crime they committed.

[1] It is important to note conducting the analysis as a multinomial logistic regression (i.e., as a 3-category dependent variable indicating juvenile court vs. young adult court vs. adult court) resulted in similar results.

Perceived culpability was a key predictor of which court participants recommended defendants be tried in. Therefore, we conducted a two-way univariate analysis of variance to test whether participants who reviewed scientific literature related to young adult development would find the defendant to be less culpable than others. We regressed perceptions of culpability on case type (felony vs. misdemeanor), evidence presentation (developmental science, crime trend, or control), political ideology, and all two-way interactions on predicting perceived culpability while controlling for gender, race, and level of education. There were main effects of case type (F (1, 259) = 8.46, p =.004) and political ideology (F (2, 259) = 7.09, p = .001). Defendants were perceived as more culpable for the felony than they were for the misdemeanor offense. Additionally, participants who identified as conservative (M = 3.71, SE = 0.08) found the defendants (regardless of crime type) more culpable than participants who identified as liberal (M= 3.34, SE = .06). Furthermore, the interaction of evidence type (developmental science, crime trend, or control) and political ideology predicted perceived level of culpability (F (4, 259) = 2.56, p = .039; Figure 2*)*. Tests of simple main effects reveal multiple significant group differences within this interaction. First, liberals were the only group whose perspectives of the defendant were affected by developmental science. Liberals who read developmental science perceived the defendant as less culpable (M = 3.06, SE = .12) than liberals who read crime trend evidence (M = 3.43, SE = .11, p=.025) or those in the control group (M = 3.52, SE = .09, p=.002). Liberals in the crime trend and control conditions did not differ from one another. Within those who read the developmental science data, liberals (M = 3.06, SE = .12) found the defendant less culpable than conservatives did (M = 3.70, SE= .15). Further, conservatives (M = 3.87, SE = .15) who read crime data perceived the defendant as significantly more culpable than liberals (M = 3.43, SE = .11, p=.019) and moderates (M = 3.35, SE = .16, p=.019) in the same experimental group did.

Discussion

The current study explores an important aspect of how science can inform policy through its impact on public support. It is the first study to test how the presentation of developmental science evidence might impact public perceptions of justice policy proposals targeting emerging adults. Further, we examined how this type of evidence impacts perceptions of general policies and how they might apply in a specific case. We found that in the context of justice policy, perhaps not surprisingly, liberals were more receptive to scientific arguments supporting progressive changes. Liberal participants who reviewed developmental science evidence were the most likely to favor policy changes for emerging adults and the only group to find the defendant to be less culpable. Those who identified as moderate or conservative were not more supportive of policy changes in a general or specific case scenario after receiving information about developmental science. These findings suggest that relying on developmental science evidence to argue in support of similar evidence-based justice policies may be most effective when attempting to inform a liberal audience.

One possible reason for these findings is that liberals are more trusting of science in general and conservatives' trust in science has been on steady decline (Gauchat, 2012). Our data support the notion that liberals are the most appreciative or trusting of science when compared to conservatives and moderates. Therefore, it is possible that this may explain why they are also more inclined to rely on developmental science evidence when making decisions about whether to support justice policy proposals. In our study, we also saw that liberal participants were more likely to find a 20-year-old defendant less culpable if they had been provided developmental science information. Many scholars have argued that developmental science evidence indicates that young defendants (*i.e.*, adolescents) are less culpable for their behavior by virtue of developmentally normative decision-making capacity (Steinberg &

Scott, 2003). In this study, liberal participants were more likely than others to make a similar assessment about our 20-year-old defendant, suggesting that they applied what they learned to inform their decisions both generally and in the specific case.

Another potential reason for our findings is that liberals may already be generally supportive of these types of policy proposals and therefore are more likely to be responsive to scientific evidence that endorses their beliefs (Nisbet, Cooper, & Garrett, 2015). Recent work suggests that political party identification (*i.e.*, Republican or Democrat) biases how individuals perceive and interpret information (Van Bavel & Pereira, 2018). When information is congruent with identified party values, it does not trigger a cognitive dissonant state and is less likely to be questioned than when information is incongruent with identified party values (Van Bavel & Pereira, 2018). Although we focused on political ideology (*i.e.,* conservative to liberal) rather than the distinct, albeit related concept of political party, the findings support the notion that political values influence evidence interpretation. Conservatives are generally found to be more punitive in the context of legal and sentencing policies (Silver & Silver, 2017). Therefore, they may perceive the presented scientific message as "dissonance inducing" which may result in a negative affective reaction (Nisbet, Cooper, & Garrett, 2015, p. 53). In other words, it is possible that we are more likely to be motivated by scientific evidence and apply it when making decisions if it supports our previously held perspectives. If the developmental science presented as justification for policy change leads to cognitive dissonance, then that may lead to a discounting of the evidence and in turn more distrust in science (Nisbet, Cooper, & Garrett, 2015).

While a majority of participants supported treating emerging adults differently from older adults, there was little support for treating emerging adults within the juvenile system. It is possible that this represents an understanding that while emerging adults are developmentally different from older adults, they are perhaps less vulnerable to risky decision making than adolescents. Recent research has found that comparing emerging adults' performance with adolescents reveals some similarities but only under certain conditions. As an example, Cohen and her colleagues (2016) studied the impact of emotional arousal on impulse control across adolescents and emerging adults. They found that when exposed to negative stimuli, 18-21 year olds made a similar number of mistakes to adolescents (13-17). However, when they experienced positive arousal, they performed similarly to 22-25 year olds (and better than adolescents; Cohen et al., 2016). Informed by this work and others, scholars have opined that emerging adults deserve a tailored response by the legal system, but their unique needs may not align perfectly with those of adolescents (Steinberg, Grisso, Scott, & Bonnie, 2016). In other words, some scholars argue that treating emerging adults as juveniles may be too simplistic and could potentially be a disservice to both groups. It is beyond the scope of this paper to identify *why* the great majority of our respondents do not support automatically including emerging adults within the juvenile system; however, these findings do suggest that policies that attempt to do so may struggle to gain broad public support.

It is important to note that this study is not without limitations. The sample was predominantly white and therefore we cannot generalize these findings broadly. It is possible that different patterns would emerge with a more diverse sample. Additionally, while we did collect self-report information about political ideology, we did not ask participants specific questions regarding different political issues or determine if they had strong perceptions about justice policy before participating in the study. However, this should not alter these results given that participants were randomly assigned to experimental conditions.

In order to address these limitations and build from the existing literature, we suggest future research includes measures of political ideology, political party identification, and perceptions of different political issues to assess the extent to which these concepts relate and predict reception to scientific

evidence. Unless motivated to look beyond existing ideological beliefs and values, it may be difficult to sway public opinion using objective scientific evidence (see Van Bavel & Pereira, 2018). Thus, future work should also continue to assess the ways in which existing predispositions or biases can be mitigated so that individuals are receptive to evidence outside of pre-existing beliefs and values. Further, while outside the scope of the immediate study, future research should explore whether the impacts of science on perceptions of culpability vary by race. Specifically, in our study we presented a case where a hypothetical crime was committed by a young Black man. However, research has shown that there is a relationship between perceptions of criminality, culpability and race where Black men are perceived as more culpable for their behavior compared to their white peers (Goff et al., 2014). Goff (2014) argues that it is possible that white suspects are more "humanized" than their Black peers and are perceived as less responsible for their behavior. Therefore, future research should explore whether the impacts of presenting developmental science on perceptions of culpability apply equally to both Black and white defendants.

This work has implications not only for changes to justice policy but also for how science evidence might inform perceptions of individual defendants in legal cases. In general, these data suggest that a liberal audience will be the most responsive to the use of science evidence when arguing for changes to how the legal system responds to emerging adults. More specifically, these data suggest that scientific arguments will be effective in informing liberals' perceptions of offender culpability and about developmentally informed alternatives to responding to offenses committed by emerging adults. Individuals who identify as conservative or moderate may be less moved by scientific arguments to treat emerging adults differently from older adults. Furthermore, these data also provide some insight to how the presentation of developmental science might influence individuals (such as jurors) perceptions of defendants' levels of culpability. Importantly, learning about current developmental science evidence resulted in liberal participants evaluating the defendant as less culpable, which played an important role in recommending whether to try the defendant as an adult. While additional research is needed to replicate these findings, they suggest that arguments relying on developmental science evidence have the potential to change how liberals, but not conservatives, perceive emerging adults and inform perceptions of culpability.

Understanding how the public perceives these policy changes is important, but equally so is an understanding of how justice system stakeholders perceive and how they might respond to these changes. Policy changes to raise the age of juvenile jurisdiction will impact juvenile justice and child welfare practitioners (Steinberg, Grisso, Scott & Bonnie, 2016). While it is important to gauge how the public may respond to policy changes and recognize the broader implications of such changes (*e.g.*, related to housing and providing treatment for young adults), future research should also acknowledge the justice system and child welfare stakeholders that will be involved in implementing such changes. From an implementation perspective, these stakeholders are uniquely able to describe the feasibility of carrying out these proposed changes. Furthermore, their support is essential for ensuring successful implementation of such policy changes. Therefore, future research should not only focus on public support, but on how practitioners perceive the impact such changes might have in practice (*e.g.*, how can existing systems accommodate a change in population size; are there existing services to support these changes or is new programming required), which we suspect will vary by jurisdiction.

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Appendix A

Stimulus Material for Experimental Conditions

Science Condition:

Developmental and neuroscientific evidence suggest that young adults are not fully developed in ways that are relevant to offending behavior. Specifically, developmental science evidence suggests that young people's decision-making capacities continue to mature through the mid-20s. For example, neuroscience evidence shows that the brain does not reach adult maturity until around 25 years of age. Developmental science shows that young adults often underestimate the true consequences of their actions and value impulsivity, fun-seeking, and peer approval more than adults over age 25 do. Finally, many offenders will stop offending after their mid-20s and developmental scientists suggest that harsh sentencing can actually increase reoffending. As a result, the governor of your state is considering new policies regarding how to best respond to young adult offenders.

Crime Trend:

Both the FBI and Bureau of Justice Statistics data show a substantial decline in violent crime and property crime rates since their peak in the early 1990s. Despite the general downward trend in both violent and property crime rates, public opinion surveys regularly find that Americans believe crime is up, even when the data show it is down. In fact, arrest rates of young adults for violent crimes are lower than they were in the 1990s and the 1980s. Even though some cities have seen a recent increase in crime, these rates are still lower than they were in the 1990s. This includes arrests for crimes of murder, aggravated assault, and robbery. As a result, the governor of your state is considering new policies around how to best respond to young adult offenders.

Stimulus Material for Participants in Innocuous Condition:

Read this book review of The Martian by Andy Weir:
Stranded on Mars after he is assumed dead by his crewmates, astronaut Mark Watney must find a way to survive with limited supplies on a hostile planet. Through journal entries, Watney relays his everyday activity, and it is supplemented with chapters covering NASA's activity back on Earth and his crew's journey on their space shuttle, Hermes. Watney is brilliant, both in his intellect and his wit. His telling is sarcastic, self-deprecating and surprisingly light-hearted given his situation. The Martian is a captivating and fun debut novel about adventure and human psychology. I look forward to reading more by Andy Weir.

Have you read this book or seen the movie? Yes or No.

Appendix B

Stimulus Material
Individual Case Vignettes

Felony: Armed Robbery

On the night of September 15th, police arrested the defendant, a 20-year-old African American male. The defendant participated in an armed robbery at a local convenient store that evening. At 11p.m. that night, the defendant entered the convenience store armed with a knife, threatened the store clerk, and demanded the money from the register and safe. The store clerk argued with the defendant for several minutes before handing over approximately $1200. Before leaving, the defendant attacked the store clerk, tied their hands and feet, and trapped him in the store's utility closet. A customer outside the store witnessed the scene and alerted the police. Two police officers arrested the defendant as he fled the scene on foot. The defendant has confessed to the crime.

Misdemeanor: Vehicle Break-in

On the night of September 15th, police arrested the defendant, a 20-year-old African American male. The defendant broke into a vehicle and stole a laptop that evening. At 11 p.m. that night, the defendant broke into the vehicle, which was parked on a residential street. He broke the driver side window and proceeded to steal a laptop from inside the vehicle. A neighbor witnessed the defendant looking into multiple car windows and alerted the police that there may be a break in. Police responded to the area and witnessed the defendant as he fled the scene on foot. The defendant has confessed to the crime.