Age, Criminal Punishment, and Accountability: What the Public Recommends for Guilty Defendants

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Abstract

Objectives: This paper assesses the effect of a defendant's age on public perceptions of recommended punishment, accountability, and the likelihood of re-offending. We use an experimental vignette design which provides a depiction of a violent robbery and varies the robber's age from fifteen to twenty-five years.

Methods: One thousand nine hundred and eighteen survey respondents from Amazon's Mechanical Turk were asked to recommend a prison sentence, a restitution amount, how accountable they believe the robber to be, and how likely he is to reoffend.

Results: Overall, there was no significant effect of age on recommended prison sentence but a significant effect \$389 ($p = 0.022$) on recommended restitution. Female respondents recommended an additional 0.270 ($p = 0.002$) years of prison for each year of defendant age and no significant difference for restitution. Male respondents had no significant difference in recommended prison time but recommended an additional \$500 ($p = 0.017$) in restitution for each year of defendant age. There was no effect of defendant age on accountability or perceived likelihood of reoffending.

Conclusions: These findings have implications on policies that differentiate punishment by defendant age, and for restorative justice practices given differences in preferred punishment by gender.

Keywords: Age-crime curve, Juvenile justice, Restorative justice, Public opinion, Age of majority

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1 Introduction

Since the turn of the century, there have been several prominent changes in the criminal justice system that have reduced the severity of penalties for youth convicted of crimes. In 2005, the United States Supreme Court ruled that the death penalty given to people who committed a crime when they were under 18 years of age was unconstitutional (Greenhouse, 2005; Bravin, 2005; Lane, 2005).[1] In the ensuing 15 years, a number of state and federal laws, and Supreme Court decisions have loosened the penalties for criminal offending for those who were juveniles at the time they committed a crime (Chabria, 2020; Cohen & Casey, 2014; Justice Policy Institute, 2017). In 2010, life in prison without the possibility of parole was deemed an unconstitutional punishment for juveniles found guilty of all crimes except for homicide and in 2012, homicide was included in an additional court decision.[2] Along with these judicial changes, several states have raised the age of criminal majority to age 18 (Justice Policy Institute, 2017; Loeffler & Chalfin, 2017; Loeffler & Grunwald, 2015). Before these new policies were enacted, 16- and 17-year-old defendants in those states were automatically tried as adults; with the implementation of the new policies, these offenders are now typically tried as juveniles and are only transferred to adult court when they are charged with serious offense or have been processed in adult court previously (Teigen, 2020).[3]

These judicial decisions and legislative changes have primarily occurred as a response to research on adolescent brain development (Chabria, 2020; Harty, 2017; M. Smith, 2017). Because the prefrontal cortex - the part of the brain responsible for planning and decision-making - does not fully mature until the mid-20s (Cohen & Casey, 2014; Cohen et al., 2016; Ortiz, 2003; Steinberg, 2017), the Supreme Court ruled that the death penalty and life in prison without the possibility of parole for minors serves as a violation of the Eighth Amendment of the Constitution, which outlaws the use of cruel and unusual punishment (Rovner, 2016).[4] Legislative changes, such as

[1] This decision was reached in the ruling of Roper v. Simmons (2005).

[2] These decisions were reached in the rulings of Graham v. Florida (2010) and Miller v. Alabama (2012), respectively.

[3] Internationally, the United Nations recommends that countries set the age of criminal majority be set at age 18 and prosecute all people under that age - and who are above the minimum age of criminal responsibility (the UN recommends age 14) - in the juvenile justice system rather than the adult justice system. However, not all countries follow this guidance (UN Committee on the Rights of the Child CRC, 2007). Brazil, for example, is considering lowering it age at which juveniles can be tried as adults from age 18 to age 16 (Alves, 2019).

[4] The Eighth Amendment reads: Excessive bail shall not be required, nor excessive fines imposed, nor cruel and

raising the age of criminal majority, have also been enacted because of the financial costs and negative consequences of sending juveniles to correctional facilities (Harty, 2017; Justice Policy Institute, 2017).

Juvenile incarceration could contribute to negative downstream effects that result in a cumulative continuity of disadvantage. For example, juveniles sentenced to a correctional facility are less likely to graduate high school or to enroll in college than similarly situated juveniles who were never incarcerated (Aizer & Doyle Jr, 2015; Hjalmarsson, 2008; Kirk & Sampson, 2013). Moreover, juvenile incarceration is costly, yet its effectiveness in reducing the likelihood of recidivism and re-arrest is unclear (Aizer & Doyle Jr, 2015; Hjalmarsson, 2009; Loughran et al., 2009). Empirical research suggests that juvenile incarceration is not more effective in reducing recidivism rates than alternative, community-based approaches (Austin et al., 2005; Mendal, 2011; Wooldredge, 1988). In particular, community-based programs that focus on therapeutic techniques are at least as effective as detention in correctional facilities in reducing juvenile recidivism (Austin et al., 2005; Mallett & Julian, 2008; Wooldredge, 1988). Unlike community-based approaches, detention facilities often do not address the needs of individuals, which some advocates believe is crucial for proper rehabilitation (Herbig & Hesselink, 2012; Mallett & Julian, 2008). Furthermore, American adults are just as willing to pay for juvenile rehabilitation and childhood prevention programs as they are to pay for juvenile incarceration facilities (Nagin et al., 2006).[5] Thus, the high social and economic costs of juvenile incarceration as well as the unclear associated benefits have prompted policy-makers to consider juvenile justice reforms. While the effectiveness of incarceration for reducing juvenile recidivism rates is uncertain, it is clear that delinquent behavior in youth can be in part, attributed to their developing brain.

Although juveniles have a basic sense of right and wrong, they are vulnerable to coercive influences that can impair their decision-making (Steinberg & Scott, 2003). Research has suggested that the prefrontal cortex does not fully mature until the mid-20s (Cohen & Casey, 2014; Cohen et al., 2016; Ortiz, 2003; Steinberg, 2017). Consequently, it may be more difficult for young people to plan ahead and control their impulses especially when they are emotionally aroused (Bala & Hyden, 2020; Steinberg & Scott, 2003). Adolescents also exhibit an increased susceptibility to peer

unusual punishments inflicted.

[5]The early childhood prevention program in the study is a home visitation program by nurses to pregnant women and new mothers to teach them proper parenting methods and to help with their personal development.

pressure, increased sensitivity to social evaluation, and increased sensitivity to rewards (e.g., peer approval, monetary rewards, etc.) compared to adults (Albert et al., 2013; Brown, 2011; Brown & Larson, 2009; Scott & Steinberg, 2008; Somerville, 2013). In situations that involve the presence of peers - even being observed from a separate room by an anonymous peer (Chein et al., 2011; A. R. Smith et al., 2018) - and/or strong emotions, adolescents seem to display compromised cognitive abilities that contribute to risky decision-making and inappropriate behaviors (Albert et al., 2013; Gardner & Steinberg, 2005). After the prefrontal cortex reaches maturity in early adulthood, the urge to partake in risk taking and stimulating behavior typically subsides and the capacity for emotional and cognitive control increases (Ritter, 2007). These recent neurodevelopmental findings, primarily studied by psychologists and neuroscientists, support the well-replicated finding in criminology that crime peaks in late adolescence and sharply declines as people grow older.

Criminologists have recognized the relationship between age and crime since the 1800s (Quetelet, 1831). Although precise estimates differ, this relationship - formally known as the age-crime curve - shows that the number of crimes people commit begins to spike in early adolescence, peaks in the late teenage years, and then declines sharply shortly thereafter (Farrington, 1986; Hirschi & Gottfredson, 1983; Moffitt, 1993). The age-crime curve is a core pillar of the field and has been studied extensively across time periods (Greenberg, 1994; Steffensmeier et al., 1989; Steffensmeier & Streifel, 1991; Sweeten et al., 2013; Fabio et al., 2011; Lauritsen, 1998), crime categories (Klausen et al., 2016; Zhong, 2005), personal characteristics (Shulman et al., 2013; Stolzenberg & D'Alessio, 2008), and in a number of countries outside of the United States (Matthews & Minton, 2018; McVie et al., 2005; Steffensmeier et al., 2017; Wikström, 1990). While brain development might increase youth proclivity to offend, it cannot explain the shape of the age-crime curve by itself, or why certain youth choose to offend and others do not. Researchers have found that there are social, psychological, and environmental changes that occur as individuals mature from children to adolescents, which can help explain why teenagers commit more crime than children and adults (Moffitt, 1993; Steinberg & Monahan, 2007; Thornberry & Krohn, 2001). One such change is that teenagers have more freedom than ever before and form closer bonds with their peers than younger children do which allows them to have more time to commit crimes as well as be peer-pressured into engaging in risky behavior (Costello & Laub, 2020; Hirschi, 2002; Laub et al., 2017). When individuals get older, graduate high school, or move away from home, they establish new peer

networks, learn from previous mistakes, and focus more on future goals which contributes to their desistance from criminal behaviors (Laub & Sampson, 2001; Sampson & Laub, 1992; Sweeten et al., 2013). However, these turning points themselves can be affected by criminal behavior and, more specifically, by interactions with the criminal justice system. Having a criminal record or a history of incarceration, for example, can make it significantly harder to get hired or graduate from high school or college (Holman & Ziedenberg, 2006).

While research on this topic is important for understanding juvenile offending, policy changes in response to this research is also limited by public opinion. Policy-makers are partially constrained in what laws they can pass by the opinions of voters, who may vote in favor of a certain law - or a politician who supports a law - regardless of the empirical research.[6] It is, therefore, important to understand how defendant age affects public perceptions of criminal responsibility and what punishments the public would like defendants to receive.

Past research has found that the age of young defendants plays an important role in public perceptions of criminal responsibility and punishment recommendations with younger defendants deemed less responsible – and deserving of more lenient penalties - than older defendants for the same crime (Ellis et al., 2018; Gongola et al., 2017; Scott et al., 2006; Steinberg & Piquero, 2010). Scott et al. (2006) asked respondents to make recommendations for criminal punishments after watching a video clip that depicted an armed robbery. Defendant in this study age was randomized as 12, 15, or 20. They found that participants endorsed the view that juvenile defendants should be treated differently than adult defendants and that the younger a defendant's age, the less likely he should be tried in adult court because younger people are more developmentally immature than those that are older. Similarly, Steinberg & Piquero (2010) found that their sample of 2,282 American adults supported juveniles being tried as adults significantly more if the juveniles were older, committed a more serious offense (rape over theft), and were repeat offenders compared to a similarly-situated comparison group. Gongola et al. (2017) assessed the degree of support for a sentence of life in prison without the possibility of parole (LWOP) for 12- and 16 year-olds who were found guilty of homicide. They found that a greater percentage of participants endorsed LWOP for the 16-year-old than for the 12-year-old but overall did not approve of this sentence for juveniles.[7]

[6] As policies can affect public opinion, and policy-makers can enact unpopular policies, having public support before a policy is enacted does not guarantee that the policy will actually be enacted.

[7] Respondents were 599 United States residents who completed a survey via Amazon's Mechanical Turk platform.

Ellis et al. (2018) examined the results of 72 interviews and 502 survey responses from adults in Australia responding to an aggravated robbery case and found that respondents recommended less punitive punishments for defendants who were depicted as being younger and who had no prior criminal record. Further, participants were significantly more likely to recommend harsher sentences for defendants if they were carrying a weapon on their person at the time of their arrest.

Past research has also found that jury members decisions are also influenced by the age of young defendants (Camilletti & Scullin, 2012; Semple & Woody, 2011; Walker & Woody, 2011; Warling & Peterson-Badali, 2003). Warling & Peterson-Badali (2003) recruited two samples of adults eligible to serve on a jury in Toronto, Canada, one university sample and one public sample to serve as mock jurors. These study participants read copies of a trial in which the defendant was accused of committing second degree murder and was written as being 13, 17 or 25 years old. The results of the study indicate that defendant age did not have a statistically significant effect on verdict decisions but did have a significant effect on sentencing decisions. Younger defendants were given shorter sentences than older defendants. Similarly, Walker & Woody (2011) recruited over 300 U.S. undergraduate psychology students to serve as mock jurors. These mock jurors were presented with facts from criminal cases against persons and property and were instructed to come up with a verdict and sentencing decision for a 24 year-old adult defendant and 14-year-old juvenile defendant being tried as an adult. Results show that the defendant's age did not affect jurors' verdicts but jurors were more likely to recommended longer sentences for the 24-year-old defendant than for the 14-year-old defendant. Another study done by Semple & Woody (2011) is similar in nature to the last two studies but yielded different results. Here, 308 undergraduate psychology students were randomly separated into four groups and read the same summary of a trial for a second degree murder but the defendant's age differed and was presented as 13, 15, 17, or 21 years. The students acted as mock jurors and were asked to present their verdicts and, if guilty, to suggest sentences for the young person accused of committing the offense. Results found that although 13- and 15-year-old defendants were convicted less often than the two older groups of defendants, defendant age did not significantly affect sentencing suggestions. Camilletti & Scullin (2012) found that a sample of 30 attorneys and 47 undergraduate students who served as mock jurors believed that a juvenile offender's young appearance would reduce jurors' ratings of criminal culpability. However, when they asked another sample of 193 undergraduate students

to decide a verdict based on defendant appearance, they found that verdicts were not affected by a juvenile's youthful appearance.

1.1 Current Study

The current study expands on the literature regarding the effect of defendant age on public perceptions of sentencing by examining two possible mechanisms. In particular, we evaluate how defendant age affects respondent perceptions of how accountable the individual is and how likely they are to commit another crime in the future. If respondents believe that people are both more responsible and more likely to commit similar crimes in the future, that could explain why past research has found that older individuals are recommended harsher sanctions. To evaluate the legal distinction that most states make between adult and juvenile penalties at age 18, we also examine if respondents believe that 18-year-olds should be punished differently than 17-year-olds. This paper uses an experimental vignette survey to evaluate public perceptions of the accountability and desired punishment of defendants – randomly assigned to an age from 15 through 25 – who were found guilty of committing a robbery. Respondents were asked to recommend a prison sentence (in years) and restitution amount (in dollars) for the defendant. Based on previous research which finds that young people are seen as less culpable and less deserving of harsh penalties and because current legislation that largely defines adults as those over 18 years of age, we have three hypotheses:

1. Participants will recommend stricter penalties for older defendants and deem them more accountable than younger defendants.
2. Participants will think younger defendants are more likely to recidivate than older defendants.
3. There will be significant differences in recommendations for penalties between 17- year-olds and 18-year-olds, with the latter receiving harsher penalties than the former.

2 Method

This study used an experimental vignette design which provided each respondent with a depiction of a violent robbery, varying only the age of the robber. Robbery is a serious violent crime that

leads to a prison sentence in most cases, thus making it a suitable choice for the vignette (Reaves, 2013). The vignette was a modified version of a vignette designed by Mendelsohn & Sewell (2004). In the modified vignette, a man named Bob is walking to his car when he is approached by a young man who begins insulting him.[8] The young man takes out a knife, drags Bob into an empty alley, and threatens to kill Bob unless he gives up his phone and wallet. The robber then flees the alley but is quickly arrested and convicted of robbery. The age of the robber was provided in the vignette and was randomly assigned to an age between 15 and 25 (inclusive). No other text was changed among the different vignettes, which allowed for an analysis of the effect of defendant age, keeping all else constant. While past studies have included descriptions of the defendant's physical appearance or other indicators of the individual's perceived maturity, we preferred to only include the person's age (describing him only as an "[AGE]-year-old male") so we could evaluate the average effect of an individual's age without having respondents consider physical appearance (Scott et al., 2006). Therefore, the results of this study should be interpreted as the average effect of age, with other important factors such as apparent physical or emotional maturity not included, but likely relevant for actual decisions when people recommend punishments. Given past research that has found that the wording of surveys about criminal justice topics can affect results, we provide the complete text of the vignette used (see Appendix A) (Steinberg & Piquero, 2010).

Following the vignette, respondents were told that they are members of the jury which convicted the robber and must make a recommendation to the judge for the appropriate punishment. There were two questions relating to punishment. First, they were asked how many years they recommend the defendant be sentenced to prison for, with a limit of between 0 and 99 (inclusive) years. The second question stated that "in addition to time in prison, the defendant can also be forced to pay restitution, which is money paid to the victim of the crime to 'right the wrong' of the crime." To avoid the potential of extreme outliers, answers were restricted to between \$0 and \$99,999 (inclusive). For each question we used OLS regression to examine the effect of defendant age on the outcome. While our experimental methods reduced the impact of any variable other than the randomized defendant age from affecting results, we included a vector of respondent demographics

[8]The young man's name, "Matt," is nearly always held by a Caucasian person, meaning that this study may not be generalizable to perceptions of other races (Tzioumis, 2018). Future research should examine if this study's effects are consistent across different defendants races.

as control variables to increase precision (Angrist & Pischke, 2008; Imbens, 2010).

While the questions on punishment evaluated what effect - if any - defendant age had on the recommended penalty for the crime, they did not provide insight into why a defendant's age affects respondent's desired punishment. To examine two potential mechanisms, we asked two questions on how accountable the defendant is and how likely they are to reoffend. Specifically, we asked how "accountable do you think the defendant is for the crime?" with the options: Very accountable, Somewhat accountable, Somewhat unaccountable, and Very unaccountable. To examine whether respondents believed that likelihood of reoffending differs by defendant age, we asked how likely it is that the defendant will "commit a similar crime in the future?" The possible choices are: Extremely likely, Somewhat likely, Neither likely nor unlikely, Somewhat unlikely, and Extremely unlikely. We used ordered logistic regression to analyze how defendant age affects the likelihood of choosing each answer.[9]

2.1 Participants

Respondents for this study were recruited from Amazon's Mechanical Turk, a website where people can take surveys in exchange for small amounts of money. Mechanical Turk is becoming a popular platform for academic research and has been utilized in past criminological research (Ling et al., 2020; Berryessa et al., 2016). While some differences have been found between Mechanical Turk participants and traditional samples (community and student samples) in studies that examine public opinion and decision-making, both Mechanical Turk participants and traditional sample participants produce consistent and reliable results (Goodman et al., 2013). The survey used in this study was approved by the Institutional Review Board and all respondents read a description of the study and consented to participate. All responses were collected between May 31st and June 19th. On average, respondents took approximately five minutes to complete the survey. We limited our sample to people who live in the United States.

In total, 2,189 people completed the survey. To ensure that respondents were reading the questions before responding, we used two attention checks and excluded anyone who failed either check. First, respondents were informed of the purpose of the study on the first page after the consented

[9]These analyses also use respondent demographics as control variables.

to be part of the study, and then were asked what that purpose was.[10] If a respondent chose any answer other than "Punishment for a crime" they were considered to have failed the attention check.[11] One hundred fifty-three respondents failed this attention check. After this question they were shown the vignette, which depicted a robbery and stated explicitly that the defendant in the scenario was convicted of robbery. They were then asked which crime the defendant was charged with and determined to have failed the attention check if they choose an answer other than "Robbery."[12] One hundred eighteen respondents failed this second attention check. In total, 271 respondents - or about 12.4% of the original sample - failed attention checks and were removed from the study, leaving 1,918 respondents in the sample.

Respondents demographics were relatively similar to that of the United States at-large. Respondents were, on average, 36.74 years old (median = 34). Respondents were more likely to be female (59.49%) than male (40.41%) and our sample had more female respondents than in the general population (50.8%). Respondents were primarily non-Hispanic White (64.65%) with 12.46% of respondents identifying as Hispanic, 9.49% identifying as non-Hispanic Asian or Pacific Islander, and 9.07% identifying as non-Hispanic Black. The remaining respondents identified as two or more races (2.71%), American Indian or Alaska Native (0.83%), or as "Other" race (0.78%). Relative to the U.S. population at large, respondents in this sample were more likely to be non-Hispanic White (60.22% in U.S.), less likely to be Hispanic (18.27% in U.S.), more likely to be non-Hispanic Asian or Pacific Islander (5.73% in U.S.), and less likely to be non-Hispanic Black (12.32%)[13] Our sample had slightly more high school graduates than the U.S. population with 90.62% of respondents having a high school education or higher (87.7% of the U.S. as a whole)[14] The present sample had a much larger percent of college graduates than the U.S. as a whole with

[10]In full, the purpose of the study read "During this study, you will be asked to imagine that a crime has taken place and that the suspect has been apprehended and found guilty. You will be presented with facts about this case and then asked to recommend a punishment."

[11]The full set of choices are: Veterinary practices, Punishment for a crime, Mental health, Drunk drinking, and Child protective services. These answers were presented to respondents in a random order.

[12]The choices for this question are: Robbery, Rape, Murder, and Cybercrime. All answers are presented in random order.

[13]Census race and ethnicity data come from the 'Hispanic or Latino Origin by Race' table available on the United States Census Bureau website (https://data.census.gov/cedsci/table?q=hispanic%20race&tid=ACSDT1Y2018.B03002&vintage=2010& hidePreview=true&moe=false). The data is from the 2018 American Community Survey (ACS).

[14]Census data are from the U.S. Census Bureau QuickFacts website which estimates U.S. population for 2019. The Census data provides education data only for respondents over the age of 25. The link to that site is here: https://www.census.gov/quickfacts/fact/table/US/PST045219

59.21% of the sample having a four-year college degree or higher compared to 31.5% of the U.S. population.

3 Results

Figure 1A shows the average recommended prison sentence for each year of respondent age. The line shows the average recommended sentence while the error bars show the 95% confidence interval. The youngest age in our sample - age 15 - had the lowest recommended years of prison at less than six years. As the defendant's age increased, respondents recommended increasingly long prison sentences until about eight years of prison time were recommended in the early 20s. The 95% confidence intervals show that while this trend continued upward as age increased, all ages were within the confidence interval of other ages, suggesting that the difference was not statistically significant. Figure 1B shows the average amount of restitution respondents recommend for each defendant age. As with recommended prison sentence, the youngest respondent age had the lowest recommended restitution at about $8,000 with the overall trend being an increase in recommended restitution as defendant age increases. As with recommended prison sentence, this trend, though increasing, showed each age within the confidence interval of other ages, suggesting that the difference between ages was not statistically significant.

[Figure 1 about here]

Table 1 shows the results of an OLS regression that estimated the effect of defendant age on recommended prison sentence (Panel A) and restitution fees (Panel B), controlling for respondent demographics. For each panel, column one shows results for all respondents, column two shows results for female respondents, and column three shows results for male respondents. Row two of each panel gives the robust standard errors of $\hat{\beta}$ while row three shows the 95% confidence intervals while row 4 shows the p-value. The final row indicates the average number of recommended years in prison (Panel A) and dollars of restitution fees (Panel B) for each group.

[Table 1 about here]

In row one of Panel A, the coefficient $\hat{\beta}$, shows the recommended increase in years in prison for each additional year of defendant age. This coefficient has a value of 0.164, indicating that for each additional year of defendant age respondents recommended an additional 0.164 years (95%

CI = [0.008, 0.335] in years) of prison sentence. This result was not statistically significant for the overall sample (p = 0.062). Given the mean prison years of 7.510, each additional year of defendant age was related to a 2.18% increase in time in prison. When considering the 11 year difference between our youngest age (15) and our oldest age (25), the effect is relatively large, an additional 1.804 years of prison or 24.02% more time incarcerated. Columns two and three of Table 1 show the results broken down by female and male respondents, respectively. There were substantial differences in recommended sentences by respondents' gender, with female respondents recommending a statistically significant (p-value = 0.001) additional 0.270 years (95% CI [0.099, 0.441] in years) in prison for each additional year of defendant age, while males recommend a non-significant 0.023 years (0.28 months) of prison.

Panel B shows the effect of each additional year of defendant age on the recommended amount of restitution. The coefficient in column one, row one of Panel B has a value of 389.706, indicating that for each additional year of defendant age respondents recommended an additional $389.706 dollars (95% CI = [55.730, 723.682] in years) of restitution. This result was statistically significant (p = 0.022). Given the mean restitution fee of $11,410.57, each additional year of defendant age was related to a 3.42% increase in restitution. When considering the 11 year difference between our youngest age (15) and our oldest age (25), the effect is relatively large, an additional $4,286.77 of restitution or 37.57% of additional fees. Similar to Panel A, Columns 2 and 3 of Panel B show the results based on respondents' gender. There are considerable differences in recommended restitution by gender, with male respondents recommending a statistically significant (p = 0.017) additional $499.860 (95% CI [89.968, 909.752]) in restitution for each additional year of defendant age and females recommend a non-significant $367.912 of restitution. These results suggest that the significant restitution-related findings from the complete sample were driven by male respondents.

To analyze whether there was a discrete jump in sanctions from age 17 to age 18, we reran the OLS regressions using only defendants aged 17 and 18. As shown in Figure 1, there was a sharp decline in recommended prison sentence and a modest increase in restitution among from age 17 to age 18. However, for both prison sentence and restitution amount, these changes were not statistically significant.

To evaluate two possible mechanisms of why age would affect recommended sanctions, we used an ordered logistic regression to estimate the effect of defendant age on perceptions of account-

ability and the likelihood that the defendant will commit a similar crime in the future. Table 2 shows the results of these regressions. Row 3 of this table shows the exponentiated $\hat{\beta}$ coefficient, or the odds ratio (OR) which is the odds of choosing a higher category relative to a lower one for each one unit increase in defendant age. For these analyses, a higher category corresponds to saying the defendant is more accountable or more likely to reoffend while a lower category is less accountable or less likely to reoffend. Column 1 shows the effect for defendant accountability and shows that each additional year of defendant age is related to a 1% decrease in the odds of choosing a higher category than a lower category, though this result is not statistically significant (OR = 0.990, p-value = 0.532).[15] Column 2 shows the result for how likely the defendant will reoffend and shows that each additional year of defendant age has a non-significant 0.005% increase in the odds of choosing a higher category relative to a lower one (p-value = 0.968).[16] When subsetting by respondent gender, results remained non-significant (results not shown).

[Table 2 about here]

4 Discussion

The findings of the current study reveal that age is not significantly related to perceptions of defendants' accountability or likelihood of reoffending. Additionally, respondents' gender influenced the extent to which defendant age was associated with punishment decisions. When examining punishment recommendations for 17-year-olds versus 18-year-olds, there was no significant difference. Overall, our findings provide mixed support for our hypotheses as well as the broader literature.

In contrast to prior studies, we do not find support that younger defendants are perceived as less accountable than older defendants (Ghetti & Redlich, 2001; Scott et al., 2006). This suggests that the respondents believe that 15- to 25-year-olds are generally able to understand right from wrong and can recognize wrongful behavior, and thus should be held responsible for their actions.

[15]The vast majority of respondents believed that the defendant is accountable for the crime, with 1,431 respondents (75%) saying that the defendant is very accountable and 251 saying they are somewhat accountable (13%). Among those who say the defendant is unaccountable, 78 say they are somewhat unaccountable (4%) and 159 say they are very unaccountable (8%).

[16]Most majority of respondents believed that the defendant will commit a similar crime in the future, with 495 respondents (26%) saying that the defendant is extremely likely and 911 (47%) saying they are somewhat likely to commit a similar crime in the future. Among those who say the defendant is unlikely, 138 (7%) say they are somewhat unlikely and 38 (2%) say they are extremely unlikely. Three hundred thirty-sex respondents (18%) considered the defendant neither likely nor unlikely.

However, this finding may also be due to characteristics of the vignette itself, as the defendant was described as being proactive committing the crime (e.g., approaching the victim, pushing the victim into deserted alley, using a knife, etc.) and these characteristics did not vary by vignette. Thus, respondents may be attributing levels of accountability based on characteristics of the crime itself rather than the defendant's age. Given the nature of the crime depicted - a violent robbery - it is unclear if respondents would judge defendant accountability differently in the case of a less serious offense. Future studies should examine this question using less serious crimes and different case circumstances, such as varying defendant race, ethnicity, and gender.

Our sample was collected from Amazon's Mechanical Turk and is not representative of the United States population as a whole. Indeed, our sample is more female, more educated, and Whiter than the general public. While we did control for demographics, this study's results may partially be due to the non-representative sample that we surveyed. Future research should endeavor to use a more representative sample, as well as specific groups of respondents such as victims of crime, police officers, prosecutors, and defense attorneys. This would give a clearer understanding both of how the United States public as a whole feels about the age of a defendant, and how particular members of the criminal justice system feel. It could also provide more guidance into likely policy changes if it detects a shift in opinion by those most likely to affect policy.

Using the total sample, the relationship between defendant age and punishment severity was somewhat inconsistent, with non-significant effects for recommended prison time and a significant increase in recommended restitution. This could suggest that although respondents believe defendants should be held responsible for their actions, they still recognize that sanctions should be developmentally appropriate. The inconsistent finding may, in part, be due to the gender difference that emerged from the results on recommended punishment. Specifically, female respondents recommended a longer sentence for older defendants while there was no significant effect of defendant age on sentence length for male respondents.[17] On the other hand, male respondents recommended higher restitution amounts for older defendants while female respondents did not recommend a significantly different restitution amount based on defendant age.[18]

[17]For female respondents only: for every 1 year increase in the defendant's age, the recommended prison sentence increased by .27 years, which translates to approximately 3.25 months.

[18]For male respondents only: for every 1 year increase in the defendant's age, the recommended restitution increased by $499.86.

The differences between genders for recommended punishments might be related to gender-related perceptions of vulnerability. Specifically, studies have suggested that women are more likely to feel vulnerable, which could lead them to be more punitive (Hurwitz & Smithey, 1998; Mills, 1980; Pierce & Harris, 1993). Female respondents in past research have reported greater fear - and taken more precautions to reduce their likelihood of victimization - than male respondents, even though women are victimized less than men, possibly due to belief among female respondents that rape could co-occur alongside any other crime (Dobbs et al., 2009; Jennings et al., 2007; LaGrange & Ferraro, 1989; Charles & Meeker, 2003; Pain, 1991).[19]

However, the current findings do not support past research on gender differences in the public's desires and recommendations for punishment (Ellis et al., 2018; Hough et al., 2013). While female respondents recommended longer prison, and thus more punitive sentences in this study, prior studies find that females are generally less punitive than males. Furthermore, past research regarding how defendant age influenced jury decisions did not find significant effects by respondent gender (Semple & Woody, 2011; Warling & Peterson-Badali, 2003). The gender differences found in the current study could have been due to the fact that participants were only asked about how long prison sentences should be, and not about other options for punishment such as probation, community service, or diversion programs. Female respondents might be more likely than male respondents to recommend longer prison sentences as a reflection of their fear of victimization because people in prison can not commit crimes against people who are not in prison. However, female respondents might not be as likely to recommend extensive probation conditions or community service hours because those punishments will not promise protection against victimization as people sentenced to these punishments are still active and free to move about their respective communities. Whether these gender differences still exist for probation or community service as outcomes should be explored in later research.

It should be noted, that while the recommended prison term for 18-years-olds was greater than for 17-year-olds, this difference is not statistically significant. This finding may prompt policy-makers to reconsider making a legal distinction between these ages in cases of serious violent crimes. An alternative explanation, however, is that while respondents consider 17- and 18-year-

[19]For a good overview of this hypothesis, called the "shadow of sexual assault", please see Charles & Meeker (2003)

olds to be similar, they can still consider *both* of these groups to deserve less punitive sanctions than older respondents. Given the increase in recommended punishment after age 20, as depicted in Figure 1, this could suggest that even age 18 is too low of a cutoff for the most serious sanction, and support raise the age policies. Given the currently ongoing efforts to change policy to increase the age of criminal majority - in some cases to over the age of 20 - more research is needed to determine public support to different types of offenses and defendants, and at different defendant ages (Perker et al., 2019; Sawyer et al., 2018). Although there is not a statistically significant difference in recommended punishments between 17- and 18-year-olds, respondents recommended that older defendants overall should be punished more harshly - with respondent gender affecting what punishment they preferred, prison or restitution - than younger defendants, which provides support for the goals of raise the age policies.

Raise the age policies can have a larger effect than simply the length of time incarcerated as they can reduce collateral consequences of incarceration and of having an adult criminal record. It is also unclear how much the possibility of collateral consequences for the defendant was considered when making their sanctions choices, if at all. If respondents believed that older people already had a criminal history and thus would not be impacted as much by collateral consequences, it could lead them to recommend stricter sanctions for older people who they believe would not get the added penalty of new collateral consequences. As this study did not evaluate knowledge or consideration of collateral consequences directly, future studies should evaluate how defendant age affects how likely respondents are to recommend these kind of sanctions and how knowledge of collateral consequences affect decisions.

Regarding recidivism, the current study found that for every year older that the defendant was, there was no significant different in either perceptions of accountability or likelihood of reoffending. This finding suggests that the general public may not be aware of empirical evidence related to juvenile recidivism that finds that reoffending sharply decreases after peaking around age 18 (Farrington, 1986; Hirschi & Gottfredson, 1983; Moffitt, 1993). It also suggests that though younger defendants have less severe recommended sanctions - when considering male-only or female-only respondents - this finding is not driven by perceptions that younger individuals are less accountable or less likely to reoffend than older individuals. The current study's findings may in part be due to considerations of the defendant's motives and intentions; indeed, there has been evidence

that whether an defendant is viewed as having impulsively committed a crime against a random individual is least likely to recidivate (Bradley et al., 2012). In our vignette, respondents may have differed on whether the defendant intentionally sought out the victim or if the victim was a random target that the defendant had the opportunity to rob. Unfortunately, the current study did not assess respondents' perceptions of intentionality.

This study evaluated punishment as length of time the defendant should be incarcerated for or how much restitution they should pay. However, these questions limit the possible outcomes for a person convicted of a crime. In the current United States criminal justice system, there are other outcomes that individuals can face, such as mandatory mental health programs (e.g. anger management) and forms of restorative justice with the victim, which can still hold individuals accountable while using less punitive sanctions (Sered, 2011).[20] Future research should expand the possible sentence outcomes they ask of respondents beyond merely incarceration time and restitution to evaluate perceptions on a broad range of possible sentencing decisions.

Although our results provide some insight into current public perceptions related to sentencing outcomes based on defendant's age, we do not know how age-related sentencing policies drive public opinion. Research has found that the environment can, in part, influence people's opinions (Bickhard, 1992; Moussaïd et al., 2013). One possible explanation is that because there has been an established juvenile justice system since the 19th century, people may assume that younger defendants should be given less serious penalties than older defendants without providing a reason for their opinions (Ferdinand, 1991; Pratt, 1986). Because age 18 has only recently been defined as the age of criminal majority in some states, people may not yet have the belief that 17- and 18-year-olds should be punished differently. It is unclear whether people may begin to adapt the idea that 18-year-old defendants should be treated in a more punitive manner than younger defendants if age 18 is consistently regarded as the age of criminal majority. It is also unclear whether research on the age of brain maturation affects people's perceptions of punishment, and if this age - around the mid-20s - is an important milestone in perceptions of sanctions.

Another limitation of our study is that it does not address how people form their opinions. In general, the American public is not well informed about that nature of the criminal justice system

[20]Given that the primary goal of the juvenile justice system is rehabilitation, these sentencing outcomes may be more common for youth defendants than for adult defendants.

nor do they hold accurate perceptions of crime trends (Pickett, 2019; Gramlich, 2016, 2020). One way in which the public gets its information about crime is through the media and the way in which the media depicts the criminal justice system influences public opinion (Sasson, 1995). The media can create a false sense of reality by distorting, exaggerating, and even flat out lying about a criminal justice related event (Green, 2009). This, in turn, influences the way people think about the system and shapes their opinions on crime and punishment.

Future research should focus on less serious offenses than the robbery in this study, and on how juvenile justice policies shape public opinion over time. It should also examine a wide range of ages including years beyond age 25 to better understand how brain development - or knowledge of brain development - affect public opinion. Research should also be conducted periodically over a long time period to determine how public perceptions change and what factors - such as actual policy changes or changes in how the media covers crime - influence such changes.

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Table 1: OLS regression results for the effect of defendant age on recommended punishment

	Complete Sample	Female Respondents	Male Respondents
$\hat{\beta}$	0.164	0.270**	0.0226
Se($\hat{\beta}$)	0.087	0.081	0.169
[CI]	[0.008, 0.335]	[0.099, 0.441]	[-0.309, 0.354]
P-value	0.062	0.002	0.893
N	1918	1,141	775
Mean(y)	7.510	6.56	8.92

(a) Panel A: Recommended Prison Sentence (in Years)

	Complete Sample	Female Respondents	Male Respondents
$\hat{\beta}$	389.706*	367.912	499.860*
Se($\hat{\beta}$)	170.290	252.127	208.797
[CI]	[55.730, 723.682]	[-126.781, 862.605]	[89.968, 909.752]
P-value	0.022	0.145	0.017
N	1,918	1,141	775
Mean(y)	11,410.57	11,154.23	11,814.83

(b) Panel B: Recommended Amount of Restitution (in Dollars)

Note: All models include the following respondent demographic control variables: age, gender, race, ethnicity, education status, and their household income. The N for female and male respondents does not add up to the complete sample N because two respondents identified as neither female nor male.
*p<0.05 **p<0.01

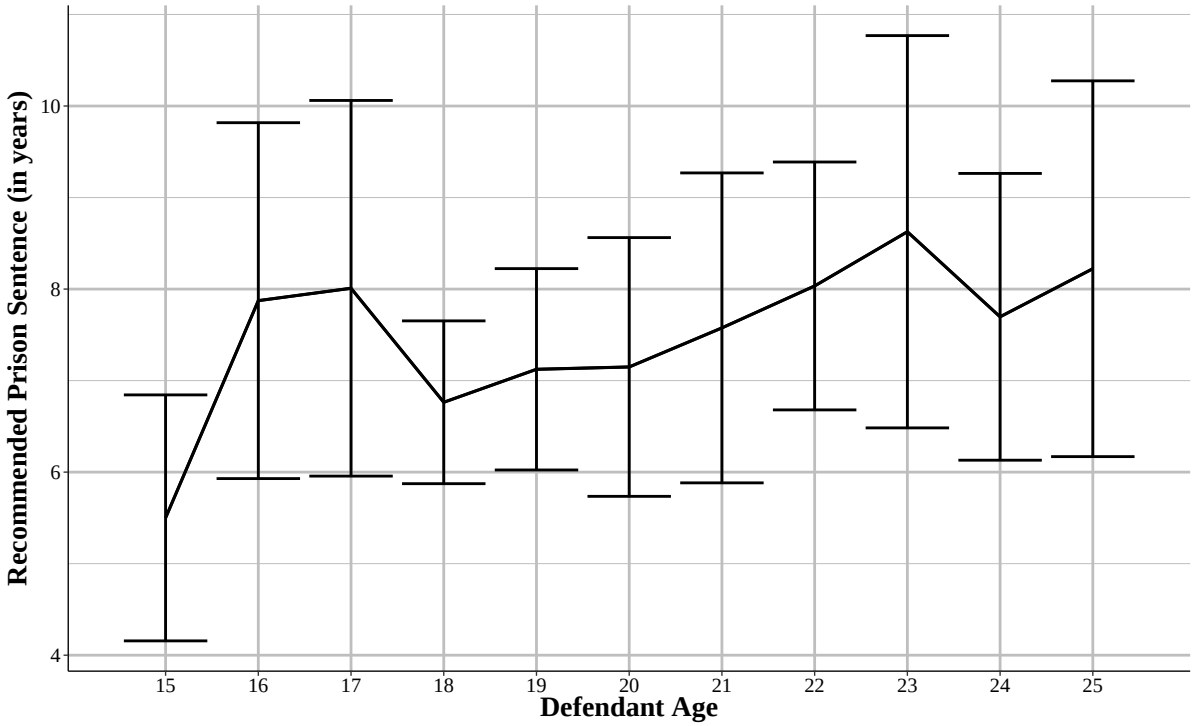
Table 2: Ordered logistic regression results for the effect of defendant age on perceptions of accountability and likelihood of committing a similar crime in the future

	How accountable the defendant is	How likely the defendant will reoffend
$\hat{\beta}$	-0.010	0.0005
Se($\hat{\beta}$)	0.0167	0.0135
exp($\hat{\beta}$)	0.990	1.0005
[CI]	[0.958, 1.022]	[0.974, 1.027]
P-value	0.532	0.968

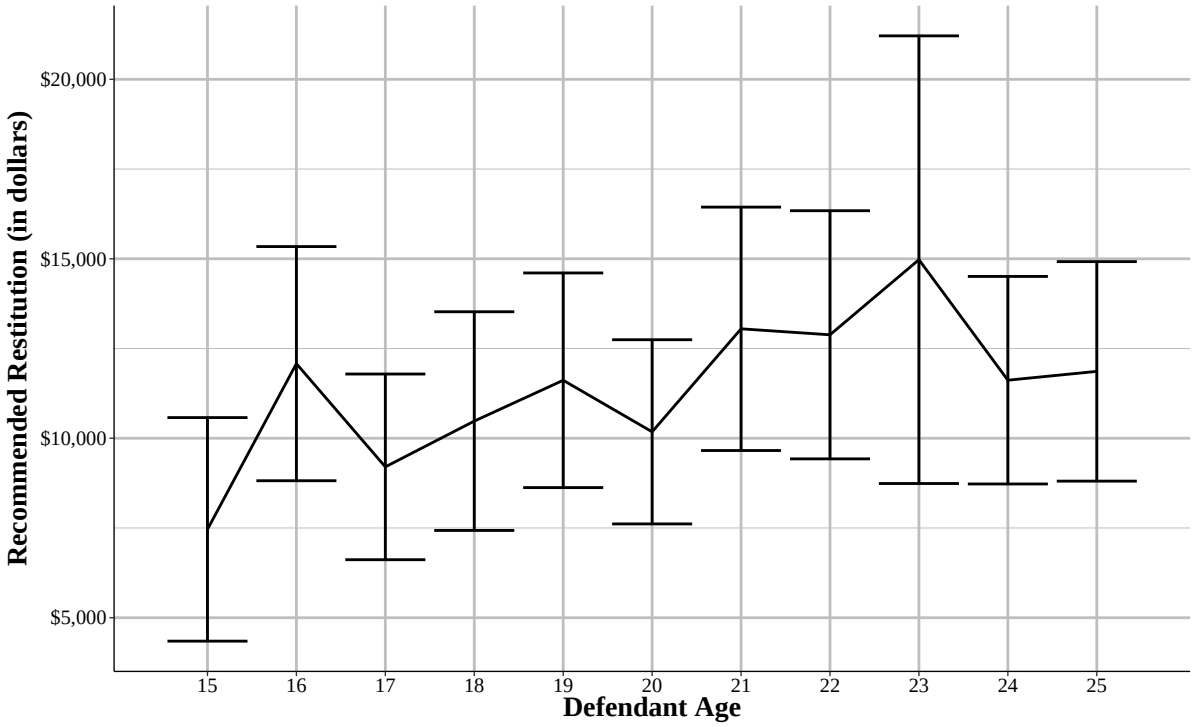
Note: Each regression includes the following respondent demographic control variables: age, gender, race, ethnicity, education status, and their household income. For the first question, respondents were asked 'How accountable do you think the defendant is for the crime?' with the possible answers being: Very unaccountable, Somewhat unaccountable, Somewhat accountable, and Very accountable. For the second question, respondents were asked 'How likely do you think it is that the defendant will commit a similar crime in the future?' with the possible answers being: Extremely unlikely, Somewhat unlikely, Neither likely nor unlikely, Somewhat likely, and Extremely likely.
*p<0.05 **p<0.01

Figure 1: Respondent Recommended for Punishments for Each Defendant Age (Randomized from 15-25, 95% confidence intervals shown in error bars)

A: Average Recommended Prison Sentence (in Years) by Defendant Age



B: Average Restitution to the Victim (in Dollars) by Defendant Age



Appendix A - Study Vignette

Bob is walking to his car after running some errands. He is approached by a [**AGE**]-year-old male, named Matt, who begins verbally insulting him. Bob walks quickly toward a busy intersection but Matt catches up with him. Matt suddenly pulls out a knife and roughly pushes Bob into a deserted alley. Matt shoves Bob up against a wall, holds the knife to Bob's throat, and threatens to kill him if he does not hand over his wallet and phone. Bob can feel the blade of the knife pressing against his skin as he reaches for his wallet and phone and gives them to Matt. After grabbing the possessions, Matt pushes Bob to the ground and runs off. Then Bob runs to a nearby convenience store and uses the phone to call the police. The police locate Matt a few blocks away from the alley, who is still holding Bob's possessions, and arrest him. A few months later, Matt is found guilty of robbery by a court of law.