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Offenders, Victims, And Perceptions Of Crime From An Evolutionary Perspective

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OFFENDERS, VICTIMS, AND PERCEPTIONS OF CRIME FROM AN EVOLUTIONARY PERSPECTIVE

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ABSTRACT

This study analyzed how positive attitudes associated with individuals of high reproductive value impacted decision-making, specifically in the area of punishing offenders who commit crime. Reproductive value in this study was manipulated by controlling the age of both victims and offenders in a crime scenario; the type of crime was also manipulated to measure potential variation caused by differences in reproductive impact. The primary areas of research that supported this study are based on evolutionary psychology, which argues that human behavior is impacted by proximate factors in socio-environmental contexts (Crawford & Anderson, 1989). This study used a model that views evolutionary adaptations in terms of the potential costs and benefits associated with the attitudes and behaviors they elicit. Age in particular reflects an important evolutionary mating cue, with unique age preferences appearing for both men and women (Kenrick & Keefe, 1992). Also, research has shown various positive attitudes associated with individuals of different ages (Sng et al., 2019). Overall, it was hypothesized that individuals will have more positive attitudes towards individuals of high reproductive value and be more punishing towards offenders who harm individuals of high reproductive value. In the end, the results supported the conclusion that the kind of crime that was committed, as well as the age of the offender, affected perceptions of what constituted an appropriate punishment, with these factors specifically affecting recommendations for length of punishment. Contrary to what was expected, the age of the victim did not have a significant impact on punishment recommendations. This study served as an initial exploration into applying evolutionary theory

to understanding some of the mixed results that are seen within criminal justice studies, with this information potentially having value for the purposes of understanding views during a trial.

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CHAPTER 1

OFFENDERS, VICTIMS, AND PERCEPTIONS OF CRIME FROM AN EVOLUTIONARY PERSPECTIVE

Social attitudes change over time, both within individuals as well as within society. The forces underlying these changes are not always clear, but they are thought to include such factors as culture, family, friends, and other social and developmental processes. Most have never considered the possible role that evolution could play in either initial development of social attitudes, or in how these attitudes may change with social conditions. In fact, scholars have largely ignored the possibility that evolutionary theories have any relevance to understanding social attitudes. This may reflect a common view that evolution is a static force whose influence is in the past and cannot account for the relatively rapid attitudinal changes we see within individuals or within societies over time. But what if evolution and its impacts are not as static as scholars typically perceive?

Although it surprises many whose exposure to the field is casual, coming perhaps from representations in popular media, evolutionary psychology (EP) is really an "environmentalist" discipline; that is, it proposes that human behavior is determined by proximate factors in socio-environmental contexts (Crawford & Anderson, 1989), rather than being directly fixed by genes. EP's theorists propose that evolution has determined which environmental cues are relevant for determining the most appropriate response in one's current context, not the exact outcome that will result. While humans are not individually designed to maximize fitness in every situation,

the criteria we consider important to our decisions reflect species-level adaptations that developed because they more often than not contributed to successful resolution of problems in evolutionary history.

In this paper, I argue that one important evolutionary consideration that may impact social decision-making throughout life is reproductive value; that is, one's perception of assessed reproductive potential as well as the likelihood of one's successful reproduction, either now or into the future. While reproduction, which forms the base of evolutionary theory, has obvious relevance to mating decisions, I propose that its impact may be far broader, affecting social judgements even in unexpected domains such as criminal justice. Below, I describe the adaptive significance of considering reproductive value in social decision-making beyond mating, and I discuss prior research that reflects such efforts, specifically focusing on age as an easily identified (and previously studied) proxy for reproductive value. Then, I develop predictions on how attitudes, particularly associated with criminal justice, will be impacted by age. Finally, I propose a study that examines the effect of reproductive value, as represented by age, on judgements within a criminal justice context, specifically expressed as attitudes towards offenders and victims of crime.

Evolution and Social Attitudes

Human evolution has impacted every facet of our lives, including not only our reproductive and biological processes, but also social processes and decision making. For instance, Sedikides et al. (2006) state that as the brain began to develop improved modes for communication, both verbal and non-verbal, this allowed humans to begin to develop as a social species. Due to these increased methods of communication, the human mind would have largely continued to evolve within increasingly social contexts that would have created many

evolutionary pressures related to the needs of group living (Sedikides et al., 2006) Based on these facts, the human mind would have developed many adaptations related to processing, understanding, and participating in group interactions, especially in the case of long-standing common social situations. In turn, these basic social adaptations would have laid the groundwork for future and more complex evolutionary based social adaptations and byproducts.

Based on its high sensitivity to environmental cues and contexts, it is probable that the mind includes some adaptive mechanism for assessing the likely reproductive benefits and consequences that would come from engaging in an action in a particular context, an evolutionary cost-benefit analysis. This study proposes a model under which evolutionary adaptations, at least ones that are context dependent, serve specifically as a way for the human mind to quickly and efficiently analyze the potential costs and benefits of engaging in particular actions. Based on the growing body of research and our understanding of the types of problems human beings experienced throughout evolutionary history, researchers have identified several kinds of adaptive mechanisms that could support the basis for such a model. For instance, Schaller and Park (2011) found that human beings have developed a complex behavioral immune system, or an immune system consisting of psychological mechanisms that cue different reactions in response to the presence of potential pathogens. This behavioral immune system occurs in many forms, including avoiding potentially dangerous people, situations, or foods, engaging in behaviors to secure aid in case of illness, and even influencing attitudes towards groups of people who are more likely to carry contagions. This latter point could serve as one potential explanation for the social phenomenon of stereotyping and discrimination. The behavioral immune system is clearly a reflection of the mind using environmental cues, primarily

of potential risks, to elicit varying responses of both personal actions as well as actions and attitudes towards other people.

In addition to costs and benefits one would receive from responses to pathogens, it also seems likely that humans would have developed a very sensitive and accurate evolutionary adaptation for measuring fairness and cheating by other group members. This kind of mechanism would be essential for successful interactions within groups of humans and properly assessing the potential costs that come with interacting with another individual. Fehr and Gachter (2002) found support for such an adaptation with their work related to altruistic punishment, or punishment at the expense of the person doing the punishing. Fehr and Gachter (2002) found that in a game involving donating money, for the greater benefit of the group, individuals displayed a high willingness to punish participants who attempted to cheat the system by donating less than the other participants, even when it came at the expense of their own money. Fehr and Gachter (2002) also found that when punishment was available individuals donated significantly more than when punishment was unavailable. This supports the conclusion that humans understand the importance of fairness, and that they act differently when steps are taken to ensure fairness; in fact, this understanding of general fairness could reflect an adaptation needed for properly analyzing potential benefits from interacting with other individuals. Additionally, Yilmaz and Bahcekapili (2016) demonstrated that religion's ability to elicit prosocial behavior was almost entirely tied to that religion's ability to punish, and that this relationship was unaffected by levels of participant religiosity. This implies that human beings are aware of group expectations, but they will not feel the need to adhere to these expectations if punishment is not a possibility; this also seems to reflect a very sensitive understanding of potential costs associated with failing to meet group expectations. Overall, these studies suggest that humans do indeed have a

mechanism for detecting cheating and other forms of anti-social behaviors, and that the detection of these anti-social behaviors then leads to social and behavioral changes, since people then engage in behaviors to punish the offending individual.

Whereas the behavioral immune system clearly represents an aspect of key importance throughout human evolution (staying healthy) there are also other research examples that support the basis of an evolutionary driven cost-benefit mechanism in specific areas related to social attitudes. For instance, Sell et al. (2017) found that men with higher levels of upper body strength had more support for war than all women and men with less upper body strength, in three out of four studied countries. Sell et al. (2017) argue that human males display these differences in social attitudes based on perceived costs and benefits from potential group conflict, which could reflect an evolutionary adaptation since winning a group conflict would provide extra resources as well as additional mating opportunities, thus indicating an adaptation that directly measures potential costs and benefits of war. In addition, Chang et al. (2011) found that when men were placed in a mating mindset, through images of attractive women's faces, bodies, or legs, they showed more positive attitudes for war and responded quicker to war related stimuli, even over stimuli related specifically to general aggression. These results seem to suggest that human males have developed, through evolutionary pressures, a connection between group conflict and mating, possibly through the access group conflict provides to new or additional mating opportunities. Taken together, these studies demonstrate that evolutionary adaptations related to certain kinds of costs and benefits can impact large-scale social attitudes, and may even be able to change certain kinds of social attitudes.

Another factor that could serve as the basis of a potential evolutionary adaptation is how different environmental cues modify one's perceptions around risk-assessment. For instance,

Fessler et al. (2014) found that parents viewed a potentially hostile stranger as more dangerous, formidable, and larger than non-parents. These data suggests that humans may have developed an evolutionary adaptation that modifies one's risk assessment, potential costs, after one becomes a parent. This adaptation would be especially important because it reflects a general change in attitudinal perception towards other individuals that is elicited based on a cue that is not currently present, in this case one's child. It is also possible that this more sensitive risk assessment mechanism could lead individuals to act or feel differently towards potentially harmful situations or individuals in general.

In addition, evolutionary factors relating to mating strategies have also been shown to impact people's attitudes towards religion. Mating strategies reflect differential approaches to mating that maximize costs and benefits and occur based on diverse cues from the environment, such as cues that indicate immediate opportunities or long-term opportunities for mating. In support of the connection between mating strategies and religion, Weeden et al. (2008) found that the factors most strongly associated with religious attendance were sexual and family behaviors, such as desire for marriage and children, and that the other typical correlations associated with religious attendance, such as age, largely disappear when accounting for these variables. Weeden et al. (2008) state that these results support the conclusion that it is not religious attendance that causes differences in these behaviors, but differences in mating strategies that lead to differences in religious attendance. This suggests that a person's religious beliefs and affiliations, which represent one of the most powerful forms of socialization in many cultures, may be largely based around how well a belief system matches up with their mating strategy. For example, a person seeking a monogamous relationship may seek out a religion or be more likely to attend services within their previous established religious context if their

religion strongly supports the idea of monogamy. This also further supports the model that evolutionary adaptations can be thought of through costs and benefits, since someone choosing to engage in a particular mating strategy would be a reflection of potential reproductive benefits they perceive from their environment, with reproduction being inherently tied to evolution.

An individual's view toward lesbian and gay male marriage reflects another kind of social attitude that has been shown to be highly influenced by the potential benefits one perceives from their mating strategy. Pinsof and Haselton (2016) found that individuals who had lower support for same-sex marriage also displayed lower support for short-term mating strategies. Also, Pinsof and Haselton (2016) found a significant association, both implicitly and explicitly, between attitudes towards homosexuality and perceptions of promiscuity. Taken together, these results suggest that individual negative attitudes towards homosexuality could be impacted by a negative view of short-term relationships, which are often associated with lesbian women and gay men. Similar to the implications of the studies of Weeden et al (2008), Sell et al. (2017), and Chang et al. (2011), these results suggest that people's social attitudes are being heavily affected by the mating strategy they are engaging in, which is ultimately being impacted by various evolutionary adaptations and environmental cues. In addition, Playà et al. (2017) establish that as one's need for alloparental care increases, so does one's favorability toward homosexuality. Playà et al. (2017) suggests that the ability of lesbians and gay men, who likely would not have children of their own, to provide additional alloparental care to kin is what could inspire these differences in attitudes. Overall, this data further supports the conclusion that humans have developed many different evolutionary adaptations and mechanisms that serve many different evolutionary functions, but the environmental cues one is exposed to, such as need for alloparental care, will determine how these adaptations can be expressed. Also, this

further supports the conclusion that as the environmental cues around someone change so will the ways in which evolutionary adaptations are expressed, which will ultimately impact a person's individual behaviors and their attitudes and behaviors about other people.

In total, research suggests that human beings have developed, through the process of evolution, many different adaptations relating to social attitudes and behaviors. Adaptations such as the behavioral immune system are clear representations of necessary adaptations that would have formed under evolutionary pressures. However, research has also identified potential avenues for various adaptations relating to mating strategies, which would serve the purpose of increasing one's ability to reproduce and thus increasing their overall evolutionary fitness. As stated above, attitudes towards war, religion, and homosexuality are all potentially explained, at least in part, by the various kinds of attitudes that form in response to one's mating strategy. In the case of attitudes towards war, it is reasonable to assume that placing men in a mating mindset would likely modify their ideal mating strategy, at least in the short-term. While not all of these adaptations and their impacts are completely understood, they all converge and support the basis for a model that views evolutionary adaptations in terms of potential costs and benefits, at least in areas strongly tied to evolutionary pressures such as reproductive fitness and maintaining one's health.

Attitudes toward Crime and Punishment

Whereas previous studies have shown that reproductive costs and benefits affect multiple social attitudes, it stands to reason that they might also affect attitudes towards crime and punishment as well, as reflected in broader views of the criminal justice system. The justice system within the United States and much of the western-thinking world is a system that is supposed to be blind, or objective and unbiased; however, questions remain about exactly how

differences in attitudes could impact offender's chances of conviction or the sentences they could receive. One area that has been extensively studied in this regard is the area of offender characteristics, though the exact way different characteristics interact is still unknown.

Devine and Caughlin (2014) found in a meta-analysis of many different studies on juror and offender characteristics that there was overall little effect on recommended sentences, based on defendant characteristics related to race, gender, and physical attractiveness, although there was an effect for socioeconomic status. Devine and Caughlin (2014) also state that the impact of these characteristics seem to be moderated by other factors, though there was not enough data for proper analysis. Overall, this information supports the conclusion that additional research is needed to properly understand the interactions between defendant characteristics and the criminal justice system, particularly in relation to punishment and sentencing.

On the other hand, Volkov (2016) found that various characteristics of an offender, such as age, gender, occupational status, were significant predictors of sentencing in Russia. The effect of age in this study was that minors, persons under the age of 18, and the elderly received less severe punishments overall than offenders of other age groups. Volkov (2016) also found that the effect of these predictors increased as the severity of the crime increased, with violent crimes showing the largest effects. This data could explain the lack of clear results found by Devine and Caughlin (2014), since it is possible that the severity of the crimes between the various studies they used was strongly moderating the effects of offender characteristics, though this cannot be verified for certain. It also suggests that individuals may be more likely to reflect their true underlying attitudes towards an offender, potentially even based on individual characteristics, if the offender's crime is considered more serious. Overall, it is clear that the attitudes someone has about an offender and the sentence they would recommend for that

offender are impacted not only by characteristics of the crime, but also by various factors relating to that individual, including demographic factors and personal factors. More research is needed in order to identify the different ways these factors can interact with or moderate each other.

Also in support of this idea, van Wingerden et al. (2016) found that sentencing decisions placed on offenders were significantly impacted by certain offender demographic characteristics, such as age and gender, and certain individual circumstances, such as prior criminal history and drug use. While some of the demographic factors, such as ethnicity and gender, were mitigated by individual circumstances, differences based on age were not mitigated by these factors (van Wingerden et al., 2016). These results suggest that demographic factors do play an important role in one's attitude toward an offender they are sentencing, but the individual effects of these factors often get swallowed up or reduced due to the large number of other factors being displayed during the trial process. The data also suggests that age may be the most important or most unique demographic factor during the formation of these attitudes, since is not mitigated in the same way as other demographic characteristics by an offender's individual circumstances, which is of notable importance since age is a highly salient factor that has many ties to possible evolutionary adaptations, which is discussed further in future sections.

Whereas most prior research has treated demographic characteristics like age and their impacts on attitudes toward offenders as "nuisance" effects to be "controlled for" in analyses, the current study treats them as a focus; these effects may represent "real" effects, the result of rational, though not necessarily conscious, decision-making that is occurring based on evolved psychological mechanisms. In particular, this study seeks to acknowledge the impact that one important demographic factor, age, has on attitudes and decision-making in the area of criminal justice.

Data from previous studies show that the offender's age remains an important variable when making sentencing decisions, but the groups that typically see reduced sentences are minors and the elderly (van Wingerden et al., 2016). While the lower sentences for minors and the elderly could be attributed to some kind of lower perceived threat or reduced cognitive capacity, a larger theory to explain the various demographic effects that have occurred in criminological research has not been proposed. Evolutionary theory could serve to fill in these gaps in previous research by providing a theory for why these groups would be seen as potentially less threatening. Also, no studies were found that analyzed how the age of a victim can impact the sentence given to an offender. This study will attempt to expand on these gaps in research by applying the previously mentioned evolutionary theories, as well as a model for understanding stereotyped behaviors and their impact on attitudes, that will be discussed later. In terms of the strong effects already seen with minors and the elderly, these could be seen as naturally stereotyped characteristics for individuals in these groups.

Attitudes and Reproductive Value

While it appears that humans have developed sensitive adaptations that are capable of changing attitudes and behaviors in response to perceived costs and benefits, it seems logical that a similar mechanism would have developed for determining benefits associated with different factors tied to reproductive value. This is based on the fact that reproduction is inherently tied to evolution and understanding reproductive risks and rewards would be essential in one's ability to find mates and pass on their genes. Similar to the way in which other various environmental factors could elicit evolutionary adaptations and change social attitudes, one's perception of reproductive value could also serve as an environmental cue that elicits different attitudes or behaviors, based on any perceived benefits associated with cues related to reproductive potential.

One of the primary areas in which one sees the influence of the benefits associated with perceived reproductive value is in the area of relationships with kin. This is due to the fact that one's kin have genes in common with them, so helping them increases their evolutionary fitness, and thus will in turn increase the odds that an individual's genes continue to get passed down. Based on this idea, Chuang and Wu (2017) found that individuals were more likely to give favors to related individuals over nonrelated, and individuals were also more likely to help individuals who were more closely related. This suggests that this element of perceived reproductive value, genetic similarity, is playing a role in one's perception of those around them and also impacts their decision making.

Chuang and Wu (2017) also found that individuals were more likely to help offspring that were higher in reproductive fitness, such as by being older and closer to reproductive age. This information supports the idea that an individual's perception of someone's reproductive value will increase positive behaviors towards that person, at least in terms of kin. Also, Littlefield and Rushton (1986) found that parents grieved for their children differently based on their perceived reproductive value. For instance, mothers grieved more than fathers, since mothers are more certain the child is actually theirs, healthy children were grieved for more than unhealthy children, and males were grieved for more than females, though both unhealthy females and unhealthy males were grieved for at the same levels. These studies seem to indicate that individuals do have some built-in mechanism for assessing the benefits associated with the reproductive potential of their children, and this perception modifies their attitudes relating to these children.

In addition to the results found by Chuang and Wu (2017) and Littlefield and Rushton (1986), Bleske-Rechek et al. (2010) found that individuals reported a preference for saving the

lives of a family member or romantic partner over five innocent strangers. This once again supports the concept that individuals place a high level of importance on reproductive value when making decisions; it even goes beyond the one-to-one ratio demonstrated in previous studies by suggesting that people place a higher value on these reproductively-valuable individuals, even over large groups of strangers. In fact, Burnstein et al. (1994) demonstrate that in life or death situations individuals report a greater willingness to help family members who are younger, healthier, more closely related, and who are female. Female children are more valuable in this case due to odds of reproduction, while healthy male children are more valuable in previous research due to capacity for reproduction. More closely related kin are reproductively valuable due to increased amounts of shared genes, while female kin, healthy kin, and younger kin are more reproductively valuable due to the larger possibility that they are able to reproduce, and thus pass on any shared genes. These results further suggest that human-beings have some evolutionary adaptation that prioritizes helping individuals who are perceived as being more reproductively valuable to us. Overall, these results support the basis that humans have some ingrained mechanism, whether conscious or unconscious, which evolved to measure reproductive value when making decisions relating to interactions with other people.

It is also important to consider the impact that an individual's perception of reproductive value or potential has on attitudes and behaviors that are not associated with kin, since this would indicate that these mechanisms for assessing reproductive value, through costs and benefits, have wide-reaching effects on social attitudes and human behavior. For example, Schmitt and Buss (1996) found that both men and women modify their behavior and employ different strategies when pursuing different kinds of relationships; men were shown to modify spending behaviors when pursuing a short-term relationship, by increasing their amount of spending, and women

were shown to indicate sexual availability when pursuing a short-term relationship. In addition, Schmitt and Buss (1996) also found that behaviors change once again when individuals begin to pursue a long-term relationship; men focus on demonstrating an ability to acquire future resources, and women attempt to show behaviors that indicate sexual exclusivity. These results reflect the fact that as one's attitudes relate to sexual preference change so do their expressed behaviors, as they begin to display behaviors the other sex desires in that kind of relationship.

In another study examining the potential effects of perceived reproductive value on behavior, Miller et al. (2007) found that exotic dancers received smaller than average tips when menstruating and larger than average tips during estrus, the point of high reproductivity in the female reproductive cycle. Miller et al. (2007) also found that exotic dancers who were on birth control did not see the same increase in tips in what would otherwise be their estrus period as dancers who were not on the pill. These results suggest that human males may have an evolutionary adaptation designed to sense fluctuations in a woman's reproductive cycle, though what form this adaptation takes is unclear. It also further demonstrates the large impact that evolutionary adaptations have on our behaviors. Overall, the studies by Miller et al. (2007) and Schmitt and Buss (1996) also demonstrate a key difference between the studies on reproductive value in kin and in strangers, that is, that reproductive value in strangers is typically associated with direct reproductive potential as a reproductive partner, but perceptions of reproductive value in kin are typically associated with more indirect elements of reproductive potential, such as percentage of shared genes (Burnstein et al., 1994).

Next, we will analyze whether there is evidence that mating strategies change in response to cues from the environment, since this would indicate that attitudes and behaviors relating to reproduction can be modified by specific outside stimuli. Jonason et al. (2019) found that when

potential mates were scarce, men displayed a willingness to lower their standards, especially when it came to short-term relationships; however, women were only somewhat willing to lower standards for a long-term relationship, but were unwilling to lower standards for a short-term relationship (Jonason et al., 2019). This information seems to suggest that when presented with the environmental cue of scarcity individuals are more likely to lower standards in terms of the kind of relationship they would generally prefer, possibly due to a change in the perceived reproductive value of those of the opposite sex. This supports the conclusion that environmental factors can have at least a limited impact on mating strategies and perceptions of reproductive value. Also, the tendency for men to lower their standards more than women (Jonason et al., 2019) could be reflective of the fact that women tend to be more selective than men when choosing sexual partners (Buss, 2019). This seems to indicate that individuals are susceptible to having at least some of their sexual preferences modified due to environmental cues on reproductive value, with men being particularly susceptible to these changes.

Finally, I will focus on attitudinal changes in response to individuals with inferior or damaged reproductive value. One primary example is individuals who have been raped, since the act of being raped could potentially damage that individual's perceived reproductive potential; this damage to perceived reproductive potential could be what leads to the stigmatization that is often associated with rape victims, especially in already marginalized groups since they would already have negative stigmas associated with them. For instance, Kennedy and Prock (2018) found that negative social reactions connected to stigmatization did occur after sexual assault or intimate partner violence incidents and were associated with higher levels of PTSD, depression, and other forms of physical and psychological distress. This was especially true for women from impoverished locations. Also, Crockett et al. (2018) describe how older victims of sexual assault

often seem to be believed less than younger victims of sexual assault, and in fact, older individuals are often underserved in areas related to sexual health, even after reports of sexual violence; this could be due to the fact that the elderly are often not treated as sexual beings, which could easily be caused by a perception of them no longer being reproductively valuable. Overall, these studies seem to indicate a general trend to stigmatize victims of sexual assault, with even more negative stigmas being placed on those from marginalized groups, such as the elderly or the poor.

Age as a Sign of Reproductive Value

In order to establish age as an important mating preference with a basis as an evolutionary adaptation, we must first consider whether men and women do indeed seek out partners of specific ages as well as the various benefits that men and women would have received throughout evolutionary history from selecting partners of those particular ages. In one such example, Kenrick and Keefe (1992) found that men do indeed report a general mate preference for women younger than themselves with this tendency increasing as men aged. However, Conroy-Beam and Buss (2019) found that men in their late-teens and early-twenties reported a slight preference for women older than themselves, and then after that point the decreasing age preference found by Kenrick and Keefe (1992) began to appear. This would seem to indicate that men do in fact have a specific age preference for potential female partners with the peak age of preference for these women being around the early to mid-twenties, since that is where the trend in preference begins to rotate from wanting older women to younger women.

In addition, Alterovitz and Mendelsohn (2011) found that men report wanting younger and younger partners as they age; for example, men ranging from 20-34 sought a partner 1.04 years younger on average, while men 75 years and older sought a partner 9.99 years younger on

average. Alterovitz and Mendelsohn (2011) state that the difference in these preferred age gaps could be due to the men compromising between the maximum age of fertility for a woman and their own perceptions about the women they can obtain and hold a relationship with, based on their own current age. Overall, this information would seem to establish that men have a prime sexual preference for women in their early-twenties and mid-twenties, likely due to reproductive factors associated with women of this age range; however they generally express this preference by preferring women younger than themselves that they also feel they could reasonably obtain and partner with.

The primary benefit that men receive from choosing younger women is that younger women have more time left before menopause, the end of a woman's menstrual cycle, after which she can no longer have children. Therefore if a man chooses a younger partner, he has more time to have potential offspring and could potentially have more offspring. While menopause can occur anytime, the most common time for it to occur is during the 40's and 50's, with an average age of 51 within the United States (Mayo Clinic, 2017). Another potential benefit to having a younger partner is that a woman's reproductive potential also decreases as she ages, even before menopause. Harmanci (2019) states that women in particular above the age of 35, with a large effect occurring after 40, begin to see decreased quality in eggs as they age, display higher rates of miscarriages, and are at increased risk for additional complications with a pregnancy, such as health issues or birth defects. This information would also suggest that there is an additional evolutionary benefit for men to seek younger partners as it serves as a means of increasing the quality of potential offspring.

We need to also consider age as a potential mating preference for women and potential evolutionary benefits women could receive from these preferences. In support of this idea,

Kenrick and Keefe (1992) and Conroy-Beam and Buss (2019) found that women tend to prefer older men; Conroy-Beam and Buss (2019) found a preferred average age gap of three-four years between women and their male partner within various cultures. Additionally, Alterovitz and Mendelsohn (2011) found that women's desire for older men shrinks as they age, though this information contradicts with the results found by Kenrick and Keefe (1992); this contradiction could be due to the fact that Alterovitz and Mendelsohn (2011) measured women to a later point in their life-span than Kenrick and Keefe (1992). Regardless, these results indicate that women also display a clear age preference when deciding on a mate, though it largely works opposite to men's preferences.

One potential reason for this difference where men prefer younger women and women prefer older men, could be that this typically allows men to gather more resources and status, thus making them a more desirable mate in a group. Based on this concept, Singh (1995) notes that one of the primary features that women look for when deciding on a potential mate's level of attractiveness is status, which is a combination of social connections and resources and also tends to increase with age. Moreover, an improvement in sperm quality (as assessed by genetic mutations) as men move into early adulthood further predicts young women's preferences for somewhat older men (Conroy-Beam & Buss, 2019). However, reductions in quality at later ages, due to factors like sperm motility and erectile dysfunction, may place a limit on this preference (Harris et al., 2011). Overall, this information suggests that age could serve as an important evolutionary adaptation for women as well in order to help them find a mate who is of high status, has more resources, and who is slightly more likely to produce higher quality offspring.

Preferences would not be meaningful if they do not reflect actual mating behaviors. Conroy-Beam and Buss (2019) indicate that marriage data shows that men do indeed marry

younger women and women tend to marry older men, which would both be predicted if the reported sexual preferences were actually impacting mating decisions. Conroy-Beam and Buss (2019) also note that this data occurs in many cross-cultural studies and comparisons, including countries such as Yemen, Bangladesh, Peru, and Sweden, though the exact age gap does vary some between cultures; this cultural variation could be due to evolutionary tendency to seek out partners of different ages being expressed slightly differently in different cultural contexts. Overall, this would seem to indicate that these mate preferences related to age are shown nearly universally among humans, further increasing the likelihood for an evolutionary explanation for these behaviors.

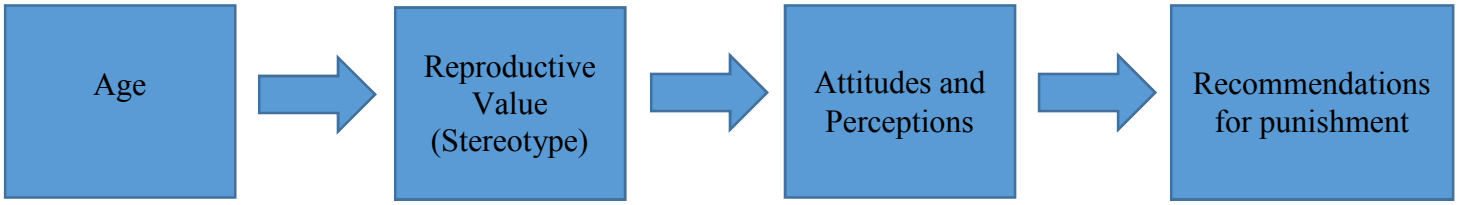
As discussed above, age is a highly salient mating preference that is directly connected to reproductive value which means it could serve as an environmental cue that signals various reproductive costs or benefits. This could also cause one's attitudes and behaviors to change towards another individual in response to the perceived reproductive benefits associated with their age. Sng et al. (2019) supports a similar idea in their finding that individuals develop sex-age categorizations and stereotypes, categorizations and stereotypes that are informed solely by the sex and age of the individual being observed. This conclusion supports the idea that different characteristics inform various kinds of stereotypes, which then elicit varying perceptions and attitudes of the individual in question, with more positive stereotypes eliciting more positive attitudes.

Sng et al. (2019) base their theory on an affordance management approach, which states that the purposes of these categorizations and stereotypes is to "manage the potential social opportunities and threats others pose" (p. 136); this is a similar approach to the cost-benefit model used throughout this study. Overall, this data, along with the understanding that age is

inherently tied to reproduction as a sexual preference, indicates that certain kinds of information, such as reproductive value, and the positive connections associated with that information may be able to influence perceptions and attitudes towards other individuals, including when and how to punish (as represented in Figure 1).

Figure 1

How Age Could Lead to Changes in Recommendations for Punishment



This line of thinking is also supported by the previously mentioned studies and cost-benefit model of evolutionary adaptations, since in many of the aforementioned studies various environmental cues were able to elicit attitudinal and decision-making changes or differences. This model is also potentially supported in terms of criminal justice research, though this connection is less clear. The reduced sentences that minors and the elderly typically experience could be seen as a result of some common characteristic stereotypes, such as being non-threatening, that inform how little or how much of a threat individuals from these groups are. In support of this line of thinking, this study will attempt to expand on these ideas related to age and reproductive value by seeing if age, as an indicator of reproductive value, is enough of a factor to warrant certain changes in attitudes if the individuals in question are not an immediate reproductive option or immediate reproductive competition. This study will accomplish this by focusing on attitudes towards different aged individuals in the criminal justice system. Overall, it is predicted that individuals will feel more positively about victims or offenders of high

reproductive value, and be harsher on offenders if they harm a high reproductive value individual.

Present Study

This study focused on how age of both victims of crime and offenders who commit crime impact recommended sentences. This study also analyzed differences in attitudes towards these individuals based on their ages. In this study, the age of a female victim was the element that highlighted reproductive value for the victim. The various forms of crime represented different levels of harm to that reproductive value. This method expanded on previous research by focusing on perceived damage to an individual of reproductive value, who is not an immediate reproductive option, rather than just how direct reproductive value is connected to behaviors. The age of the offender was manipulated as a potential moderating variable. The attitudes toward the victim and offenders were also being measured to see if attitudes changed in response to perceived reproductive value; this expanded on previous research by connecting reproductive value with more general positive perceptions of individuals, rather than solely focusing on perceptions towards people who are of immediate reproductive value or competition.

It was hypothesized (Hypothesis 1a) that both men and women would recommend stronger punishments for offenders who assaulted the high reproductive value victim, since they were showing no concern for impacting that individual's reproductive value. It was also hypothesized (Hypothesis 1b) that individuals would recommend less severe punishments for a high reproductive value offender. Hypothesis 1a predicted a main effect based on the age of the victim, while Hypothesis 1b predicted a main effect based on age of the offender.

A second hypothesis (Hypothesis 2) was that participants would recommend even stronger punishments for offenders who victimized a high reproductive value individual in a

reproductively significant way, with the two crimes that were used being rape and assault; this implied a 2-way interaction effect between age of victim and type of crime. Hypothesis 3 was that as the severity of the crime increases, individuals would begin to be harsher on offenders of lower reproductive value; this indicated a 2-way interaction effect based on the age of the offender and type of crime.

However, it is further hypothesized (Hypothesis 4) that the relationship between victim-value and punishment should appear stronger for men, since the victim is female and thus represents a potential mate for them as well as someone with positive associations; this implied an interaction between respondent sex and age of the female victim. Finally, it was predicted (Hypothesis 5) that people would indicate more positive general attitudes toward both high reproductive value victims and offenders; this predicted main effects based on the victim's and offender's ages.

Overall, this study expanded on previous evolutionary theory connected to reproductive value by attempting to see how strongly views of reproductive potential could generalize to more overall positive feelings. This study also expanded on previous research in criminal justice by attempting to provide an explanation for some of the previously observed effects connected to demographic information. If a more positive association from reproductive value can lead to differences in sentencing, then it is possible that an evolutionary model, based on positive attitudes towards individuals who are perceived as valuable, could be used to explain some of the other previously seen demographic effects, such as on socioeconomic status and race.

CHAPTER 2

METHOD

Participants

One-hundred-fifty-five individuals were recruited for this study either from Indiana State University (ISU) (n = 87) or through the personal social media accounts of the primary researcher, specifically Facebook (n = 23); the Facebook sample was added to compensate for lower than expected numbers of subjects and to improve power for analyses. Responses of three people were removed for quitting the study prior to assignment to a condition. Responses of eleven people over 29 years of age were removed due to the inapplicability of the manipulation to them. Finally, responses of thirty-one more people were removed from analyses for failing two or more of the three manipulation check items. This left 110 participants in our samples (n = 87 ISU, 23 non-ISU). A post-hoc power analysis indicated that the current sample of 110 participants left me with only .44 power rather than an ideal power of .80 or greater (Statistics Kingdom, n.d.).

The typical subject was a white heterosexual female who was slightly more likely to be in a relationship than not. The rates of the different categorical demographic variables, including biological sex, gender identity, race, sexual orientation, and relationship status can be found within Table 1. The average age of the 110 participants is 20.26, SD = 2.51, ranging from 18-29 years old.

ISU and Non-ISU samples did not significantly differ on demographic factors relating to race/ethnicity, gender identity, sex, or relationship status. However, sexual orientation, χ^2 (4, n= 110) = 10.12, p = .006, was not equally distributed between groups, with 30.4% of non-ISU students listing themselves as bisexual, pansexual, or other as compared to only 10.3% of ISU students. The ISU and non-ISU samples also differed on political ideology with the ISU sample being more neutral (M = 4.00) than the non-ISU sample (M = 5.09), which was more liberal, t(108) = -2.64, p = .010.

Table 1

Demographic Characteristics of Subjects for Categorical Variables

Characteristic/Label	ISU	non-ISU	Total	$X^2(df)$	*p*
Race/Ethnicity				3.11(4)	.540
White/Caucasian	65	20	85		
Black/African American	10	0	10		
Hispanic/Latinx	5	1	6		
Multiracial	4	1	5		
Other	3	1	4		
Gender Identity				.93(2)	.629
Female	58	17	75		
Male	24	6	30		
Transgender, neither, or other	3	0	3		
Missing	2	0	2		
Biological Sex				.03(1)	.862
Female	62	17	79		
Male	24	6	30		
Missing	1	0	1		
Sexual Orientation				10.12(2)	.006*
Heterosexual/Straight	78	15	93		
Lesbian/Gay	0	1	1		
Bisexual, Pansexual, Other	9	7	16		
Relationship Status				6.73(4)	.151
Not in relationship/Single	42	10	52		
In a relationship without living together	32	6	38		
In a relationship and living together	8	3	11		
Engaged	1	0	1		
Married	3	4	7		
Missing	1	0	1		

Note. Missing refers to subjects who left that particular item blank. Only categories with missing rows had subjects leave those items blank.

Design

The design of this study was a 2 (victim's age) x 2 (offender's age) x 2 (kinds of crime committed) factorial design; the eight unique groups were each provided a manipulation of the three independent variables through one of eight individual vignettes (discussed below). Each participant only received one of these vignettes throughout the course of the experiment.

Materials

Demographic Questionnaire

Participants were asked to report their age, gender identity, sex, political affiliation, ethnic background, relationship status, past experiences with crime and sexual orientation (See Appendix A). Additionally, the demographics survey included one question which was used to measure strength of political beliefs on a 7-point scale where "1= strongly conservative" and "7= strongly liberal."

Vignettes

Eight vignettes were created involving a perpetrator named Jeff and a victim named Katelyn; the names for the vignettes were chosen based on their ratings of average warmth and competency in a study conducted by Newman et al. (2018). The age of the victim was manipulated to check for differences that occur based on perceived reproductive value. The ages of 23 and 45 were selected due to previous research indicating a preference for women in their early to mid-twenties (Conroy-Beam & Buss, 2019) and the fact that women at the age of 45 would be approaching menopause (Mayo Clinic, 2017). The high reproductive value woman's age also fell into the expected age preference for individuals within our sample, who will likely be 18-22, with the other possible age falling outside of this preference area. Due to these factors, the 23 year old was considered to have high reproductive value and the 45 year old was

considered to have low reproductive value. The age of the offender was manipulated to check whether attitudes differ between offenders with high and low reproductive value. The age of 28 was selected for the age of the high reproductive value offender due to proximity to the expected age of our participants. The average age of individuals in the sample was 20.26, and women tend to prefer men who are several years older than themselves (Conroy-Beam & Buss, 2019). Fifty was selected as the age of the low-value offender to keep the distance between the manipulated ages the same for both the victim and the offender. Finally, the crime was manipulated to measure if the recommendations for punishment will change as a result of the perceived harm to the reproductive value of the victim. The two kinds of crime provided different levels of impact on the victim's reproductive value. For instance, rape served as a measure of something that could impact a women's perceived reproductive value and also directly related to reproduction, while assault served as a control, since it is not as likely to impact a woman's reproductive value in the long-run. The vignettes for this study were kept intentionally simplistic due to the multitude of variables being manipulated and to increase the strength of the manipulation, by not providing the participants with too much information. The basic vignette (and possible variations) was worded as follows:

> "Please carefully read and review the following crime scenario:
>
> Recently, a crime was committed in the area of downtown Indianapolis. It was reported that a woman by the name of Katelyn had been [raped/physically beaten]. Police reported that Katelyn is a [23/45] year old single woman from the local Indianapolis area. After a lengthy investigation, police arrested a suspected individual by the name of Jeff; Jeff is a [28/50] year old man who was from the same area in Indianapolis. Jeff was charged with (rape or assault) and convicted, however he is still awaiting sentencing."

See Table 2 below for a full list of the number of individuals from each one of the vignettes that was used in the final sample.

Table 2

Number of Males and Females Presented with Vignettes

Vignettes	Number of Females	Number of Males
Vignette 1	11	2
Vignette 2	7	3
Vignette 3	14	3
Vignette 4	10	5
Vignette 5	10	4
Vignette 6	9	3
Vignette 7	11	4
Vignette 8	7	6
Total	79	30

Note. One Individual did not select a biological sex. This person was presented with Vignette 6

Punishment Questionnaire

The punishment questionnaire was a four-item questionnaire that was made for this study and asked participants what they felt would be an appropriate level of punishment for the offender, based on the vignette they had been presented with. The forms of punishment came in length of sentence, kind of prison facility the offender should be held in, availability of visitation for the prisoner, and labors required of the prisoner. The scale contained ten potential punishment levels for length of sentence in order to account for the wide variety of punishments that could be recommended; the options for this question range from probation to the death penalty. For the question regarding facility placement, the participants were able to recommend where they believe the offender should be sentenced on a 7-point scale, ranging from the "most restrictive facility possible" to the "least restrictive facility possible." Recommendations for labor were measured by a 7-point scale with answers ranging from "Strongly disagree" to

"Strongly agree." Finally, recommended availability of visitation was measured by one question relating to the number of allowed visits for the offender in a month, with a range of 0-6+. This questionnaire represents the primary measure that was used to analyze the hypothesis that individuals would respond more harshly to offenders who harm people with high reproductive value, since recommending a longer or harsher punishment would be an indication that individuals view their actions more negatively. Because of a lower than ideal Cronbach's Alpha, $\alpha = .493$, no scale was created and the punishment variables were analyzed independently. See Appendix B (top) for the punishment items.

Manipulation Checks

After the punishment questionnaire, three manipulation check items were asked; these items occurred at the end of the punishment questionnaire to help hide their true purpose. These manipulation checks asked participants about the age of the victim they read about, the name of the offender, and the crime that was committed. See Appendix B (middle) for manipulation check questions. See Appendix B (middle) for the full list of manipulation checks.

Identification Item

Before moving to the attitudinal measures, participants completed a question designed to see which individual in the vignette they identified with. This was done by asking the subjects to determine which role they would place themselves into, offender or victim, if they were in this scenario. This question served as a way to account for possible confounds if any group of subjects identified too strongly with either the victim or the offender. See Appendix B (bottom) for the full question.

Offender Attitudes Questionnaire

This questionnaire contained five questions relating to attitudes towards the offender from the vignette in a variety of areas, including intelligence, morality, adjustment, how much the participants liked them, and how much they would like to work with them. These questions were based on the Interpersonal Judgement Scale which was designed by Byrne (1971) to measure general attitudes towards another targeted person in a variety of situations. The version used for this study slightly modified the original by removing an item pertaining to knowledge of current events, since this item would be inconsequential in a criminal justice setting, and by changing the layout of the first three items, treating them as three separate questions rather than one question with three parts. The participants were asked to select how strongly they agree or disagree with each of the statements about the offender on a sliding scale, with potential answers ranging from 0-100. The five items were combined in order to create one overall attitude towards the offender score, with potential values ranging from 0-500. Higher scores on this scale indicated more positive attitudes toward the offender. The items showed a high level of reliability, Cronbach's $\alpha = .850$. See Appendix C for the full questionnaire.

Victim Attitudes Questionnaire

This questionnaire contained five questions relating to attitudes towards the victim from the vignette in a variety of areas, including intelligence, morality, adjustment, how much the participants liked them, and how much they would like to work with them. These questions were identical to the items used for the offender attitudes questionnaire, with the exception that the name of the offender was swapped with the name of the victim for all items. The participants were asked to select how strongly they agree or disagree with each of the statements about the offender on a sliding scale, with potential answers ranging from 0-100. The five items were

combined in order to create one overall attitude towards the victim score, with potential values ranging from 0-500. Higher scores on this scale indicated more positive attitudes toward the victim. The items showed a high level of reliability, Cronbach's $\alpha = .922$. See Appendix D (top) for the full questionnaire.

Reproduction Item

The final item which was presented on the victim attitudes questionnaire asked the participants to select how likely the victim was to reproduce in the future. This item was added to measure potential attitude shifts towards the victim's reproductive value as a result of the crime. This item was not scored into one scale with the other five items since it was designed to measure a different concept, though it was scored on the same 0-100 point scale. Higher scores on this item indicated that participants felt that the victim had a higher chance of reproducing in the future. See Appendix D (bottom) for the full question.

Procedure

Participants who volunteered to complete the online survey, either from ISU's campus or from Facebook, were directed to the study questionnaire. They were first presented with an online informed consent document, see Appendix E for full informed consent document. After completing the informed consent, the subjects were presented with the demographic items. After completing the demographic questionnaire, participants were presented with one of the eight possible vignettes, determined at random. Then, participants were given the punishment questionnaire. After completing the punishment items, the participants completed the manipulation check items. Upon completing the manipulation check items, the participants were given the attitudes towards the victim and attitudes towards the offender questionnaires, in a

random order. Finally, they were presented with an online debriefing, see Appendix F for full debriefing form.

Chapter 3

RESULTS

Primary Analyses

Hypotheses 1 - 3

In order to test the hypotheses related to recommendations for punishment, a 2 (age of victim) x 2 (age of offender) x 2 (type of crime) MANOVA with four dependent variables, one for each punishment item (questions 1-4 on the punishment questionnaire), was used. The multivariate analysis indicated that the type of crime that was committed significantly contributed to the overall model, Pillai's Trace = .160, $F(4, 98) = 4.65$, $p = .002$. In addition the age of the offender also had a nearly significant impact on the overall model, Pillai's Trace = .083, $F(4, 98) = 2.23$, $p = .071$. The multivariate analyses indicated that victim's age, Pillai's Trace = .019, $F(4, 98) = .47$, $p = .761$, the interaction between victim's age and offender's age, Pillai's Trace = .012, $F(4, 98) = .31$, $p = .873$, and the interaction between victim's age and crime, Pillai's Trace = .030, $F(4, 98) = .75$, $p = .562$, did not significantly contribute to the overall model. Also, the interaction between offender's age and crime, Pillai's Trace = .010, $F(4, 98) = .26$, $p = .905$ and the 3-way interaction between the independent variables, Pillai's Trace = .050, $F(4, 98) = 1.29$, $p = .280$, did not significantly contribute to the overall model. Univariate 2x2x2 analyses were conducted to explore and understand significant and marginally significant multivariate results and those pertaining to the hypotheses.

Hypothesis 1a

Contrary to what was expected based on Hypothesis 1a, the age of the victim did not have a significant effect on any of the recommendation for punishment items, though the values were in the direction expected for this hypothesis; See Table 3 for lists of means relating to all four punishment items. Also, see Table 4 for univariate effects and significance levels. For example, high-value younger victims led to slightly more severe recommendations for length of punishment ($M = 4.70$) compared to low-value older victims ($M = 4.30$).

Hypothesis 1b

Hypothesis 1b was partially supported as the univariate results demonstrated that the age of the offender significantly affected recommendations for some kinds of punishment. Lower lengths of sentences were recommended for high-value younger offenders when compared to low-value older offenders. There was also a significant main effect for the types of facilities that the offender should be held in, with less restrictive environments being recommended for the higher-value offenders compared to low-value offenders. Recommendations for prison labor and prison visits were not significantly impacted by offender-value. See Table 3 below for lists of means relating to all four punishment items. Also, see Table 4 for univariate effects and significance levels.

Hypotheses 2-3

The previously reported multivariate analyses showed no evidence of the hypothesized interactions between type of crime and age of the victim (Hypothesis 2) nor age of offender (Hypothesis 3). However, given the significant multivariate main effect of type of crime, univariate analyses of this effect, as described above, were examined for each punishment DV. Crime served as a significant predictor for recommended length of punishment, with offenders

being punished more severely for rape ($M = 5.37$) than assault ($M = 3.63$), however this effect was only found on the length of punishment item. See Table 3 below for lists of means relating to all four punishment items. Also, see Table 4 for effects and significance levels.

Table 3

Means for Offender's and Victim's Ages Based on Crime for Punishment Items

A. Length		Rape		Assault	
		Age of Offender		Age of Offender	
		Young	Old	Young	Old
Age of Victim	Young	5.42	5.24	3.21	4.93
	Old	4.9	5.93	2.77	3.62

B. Facility		Rape		Assault	
		Age of Offender		Age of Offender	
		Young	Old	Young	Old
Age of Victim	Young	4.08	4.71	3.93	4.4
	Old	4.1	4.6	3.15	4.38

C. Visitation		Rape		Assault	
		Age of Offender		Age of Offender	
		Young	Old	Young	Old
Age of Victim	Young	4.42	4.94	4.43	4.73
	Old	4.7	5.07	4	5

D. Required Labor		Rape		Assault	
		Age of Offender		Age of Offender	
		Young	Old	Young	Old
Age of Victim	Young	4	4.64	5.07	5.2
	Old	5.3	4.87	4.85	5

Table 4

Effects and Significance Levels of Univariate Analysis for Hypotheses 1a - 3

DV/Category	*F*	*df*	*P*	R^2
Length of Punishment				
Victim' Age	.87	1, 101	.353	.007
Offender's Age	4.07	1, 101	.046	.032
Crime	16.85	1, 101	<.001	.132
Vic*Off	.04	1, 101	.841	.000
Vic*Crime	1.32	1, 101	.254	.010
Off*Crime	1.02	1, 101	.314	.008
Vic*Off*Crime	1.52	1, 101	.221	.012
Facility				
Victim' Age	.80	1, 101	.373	.007
Offender's Age	8.27	1, 101	.005	.072
Crime	2.73	1, 101	.102	.024
Vic*Off	.42	1, 101	.518	.004
Vic*Crime	.51	1, 101	.477	.004
Off*Crime	.35	1, 101	.556	.003
Vic*Off*Crime	.81	1, 101	.371	.007
Visitation				
Victim' Age	.03	1, 101	.859	.000
Offender's Age	2.51	1, 101	.115	.024
Crime	.49	1, 101	.488	.005
Vic*Off	.15	1, 101	.698	.001
Vic*Crime	.170	1, 101	.681	.002
Off*Crime	.09	1, 101	.765	.001
Vic*Off*Crime	.38	1, 101	.539	.004
Required Labor				
Victim' Age	.61	1, 101	.436	.006
Offender's Age	.126	1, 101	.723	.001
Crime	.87	1, 101	.353	.008
Vic*Off	.57	1, 101	.452	.005
Vic*Crime	1.93	1, 101	.167	.018
Off*Crime	<.00	1, 101	.961	.000
Vic*Off*Crime	.63	1, 101	.431	.006

Hypothesis 4

A 2 (age of victim) x 2 (age of offender) x 2 (sex of participant) MANOVA with four dependent variables, one for each punishment item (questions 1-4 on the punishment questionnaire), was used to analyze Hypothesis four and to test for potential interactions based on the sex of the participants. This separate MANOVA was used instead of adding sex as a fourth factor to the prior analyses, that included crime, due to the small number of participants, particularly males, in the sample, which limited the size of groups broken out by an additional factor (which was not hypothesized to interact with sex). One subject who did not select a biological sex was necessarily left out of these analyses. Contrary to expectations the multivariate analyses showed no significant effects based on sex, Pillai's Trace = .065, $F(4, 97) = 1.69$, $p = .157$, or interactions between sex and age of offender, Pillai's Trace = .032, $F(4, 97) = .81$, $p = .521$, or between sex and age of the victim, Pillai's Trace = .052, $F(4, 97) = 1.31$, $p = .269$. Offender age continued to have a significant multivariate effect, Pillai's Trace = .125, $F(4, 97) = 3.48$, $p = .011$, while victim age did not, Pillai's Trace = .029, $F(4, 97) = .73$, $p = .572$. The multivariate results also showed no significant effect on the model from the interaction between offender age and victim age, Pillai's Trace = .024, $F(4, 97) = .59$, $p = .668$, or from the 3-way interaction of the variables, Pillai's Trace = .071, $F(4, 97) = 1.84$, $p = .127$. Univariate 2x2x2 analyses were conducted to explore and understand significant multivariate results and those pertaining to the hypotheses.

Contrary to Hypothesis 4, there was no significant interaction between the sex of the participants and the age of the victim on recommendations for length of punishment, facility recommendations, visitation, or required labor. See Table 5 below for lists of means relating to all four punishment items based on analyses for Hypothesis 4. Also, see Table 6 for effects and

significance levels. Also, there was no significant interaction between subject sex and the age of the offender on any of the dependent punishment items. Finally, there was also no main effect based on the sex of participants for recommendations for length of punishment, the type of facility the offender should be held in, or visitation ability However, there was a marginal main effect based on preferences for required prison labor, with males ($M = 5.37$) being more in favor of it than females ($M = 4.67$).

As indicated above, offender age continued to remain significant for length of punishment and facility, and not significant for labor and visitation, though a marginal effect was detected for visitation. While victim age was still non-significant for all four items Also, there was also no interaction between offender age and victim age on any of the four items. Surprisingly, there was a significant 3-way interaction between offender age, victim age, and sex of participants on length of punishment, but no significant three way interactions were found on the other three dependent variables

Table 5

Means for Offender's and Victim's Ages Based on Sex of Participants for Punishment Items

A. Length		Male		Female	
		Age of Offender		Age of Offender	
		Young	Old	Young	Old
Age of Victim	Young	2.83	6.43	4.65	4.72
	Old	4.00	4.73	3.56	4.94

B. Facility		Male		Female	
		Age of Offender		Age of Offender	
		Young	Old	Young	Old
Age of Victim	Young	3.83	5.00	4.05	4.44
	Old	2.83	4.18	3.81	4.71

C. Visitation		Male		Female	
		Age of Offender		Age of Offender	
		Young	Old	Young	Old
Age of Victim	Young	4.17	4.43	4.50	4.96
	Old	3.50	5.18	4.50	4.94

D. Required Labor		Male		Female	
		Age of Offender		Age of Offender	
		Young	Old	Young	Old
Age of Victim	Young	6.00	5.00	4.15	4.88
	Old	5.17	5.36	5.00	4.65

Table 6

Effects and Significance Levels of Univariate Analysis for Hypotheses 4

DV/Category	*F*	*df*	*P*	R^2
Length of Punishment				
Victim' Age	46	1, 100	.498	.004
Offender's Age	7.85	1, 100	.006	.070
Sex	.00	1, 100	.955	.000
Vic*Off	.57	1, 100	.451	.005
Vic*Sex	.03	1, 100	.872	.000
Off*Sex	1.95	1, 100	.166	.017
Vic*Off*Sex	4.11	1, 100	.045	.037
Facility				
Victim' Age	2.57	1, 100	..112	.022
Offender's Age	11.56	1, 100	<.001	.100
Sex	1.08	1, 100	.302	.009
Vic*Off	.38	1, 100	.541	.003
Vic*Sex	2.73	1, 100	.102	.023
Off*Sex	1.22	1, 100	.273	.011
Vic*Off*Sex	.08	1, 100	.774	.001
Visitation				
Victim' Age	.01	1, 100	.926	.000
Offender's Age	3.31	1, 100	.072	.031
Sex	1.08	1, 100	.302	.010
Vic*Off	.80	1, 100	.373	.008
Vic*Sex	.01	1, 100	.946	.000
Off*Sex	..44	1, 100	.507	.004
Vic*Off*Sex	.85	1, 100	.360	.008
Required Labor				
Victim' Age	.00	1, 100	.966	.000
Offender's Age	.07	1, 100	.788	.001
Sex	3.26	1, 100	.074	.030
Vic*Off	.01	1, 100	.943	.000
Vic*Sex	.47	1, 100	.493	.004
Off*Sex	.56	1, 100	.457	.005
Vic*Off*Sex	2.08	1, 100	.152	.019

Note. Sex in all cases above refers to sex of the participants.

Hypothesis 5

Next, two 3-way ANOVAs (2 x 2 x 2: age of victim x age of offender x crime) tested for differences on the two questionnaires assessing attitudes toward the victim and toward the offender. Contrary to Hypothesis 5, neither attitudes towards offenders nor victims were significantly affected by any of the three independent variables. However, attitudes towards the offender were in the expected direction based on their age, with high-value younger offenders (M = 88.61) being perceived slightly more positively when compared to low-value older offenders (M = 81.57), $F(1, 79) = .184$, $p = .669$, $R^2 = .002$. On the other hand, attitudes towards the offender moved in the opposite direction of what was expected when considering the victim's age, with offenders who attacked a high-value victim (M = 93.01) being evaluated more positively than offenders who attacked the low-value victim (M = 77.18), $F(1, 79) = .932$, $p = .337$, $R^2 = .011$. Also surprising was the fact that attitudes towards the offender did not significantly change in response to what crime they committed, with offenders who committed rape (M = 86.19) being viewed nearly identically to offenders who committed assault (M = 84.00), $F(1, 79) = .018$, $p = .894$, $R^2 = .000$. The results also indicated that there was no significant interaction between victim's age and offender's age, $F(1, 93) = 1.16$, $p = .284$, $R^2 = .014$, between victim's age and crime, $F(1, 93) = .85$, $p = .359$, $R^2 = .010$, between offender's age and crime, $F(1, 93) = .01$, $p = .909$, $R^2 = <.000$, or between victim's age, offender's age, and crime, $F(1, 93) = .318$, $p = .574$, $R^2 = .004$, on attitudes towards the offender.

Also contrary to Hypothesis 5, the attitudes towards the victim were not significantly affected by any of the three independent variables. In fact, the attitude scores for the victim were all nearly identical regardless whether the victim was high (M = 305.66) or low (M = 303.24) value, the offender was high (M = 300.87) or low value (M = 308.04), or whether the victim was

raped (M = 306.76) or assaulted (M = 302.15), $F(1, 93) = .011$, $p = .917$, $R^2 = .000$; $F(1, 93) = .095$, $p = .758$, $R^2 = .001$; and $F(1, 93) = .039$, $p = .843$, $R^2 = .000$ respectively. The results also indicated that there was no significant interaction between victim's age and offender's age, $F(1, 93) = .34$, $p = .561$, $R^2 = .004$, between victim's age and crime, $F(1, 93) = .01$, $p = .905$, $R^2 = .000$, between offender's age and crime, $F(1, 93) = .117$, $p = .733$, $R^2 = .001$, or between victim's age, offender's age, and crime, $F(1, 93) = .05$, $p = .820$, $R^2 = .001$, on attitudes towards the victim.

Additional Analyses

The following analyses were used to better understand the results presented within the primary analyses. First, the two samples, ISU and non-ISU, were compared to make sure that there were no significant interactions between them on the punishment items, thus allowing the samples to be properly combined for analyses. Next, a comparison was done to test the impacts caused by who, the victim or the offender, male and female subjects identified with. Finally, an analysis was done to see how the three independent variables impacted subjects' perceptions of the victim to reproduce in the future.

Sample Source

In order to compare the two samples, the ISU and non-ISU samples, four independent means t-tests were conducted. Overall, the non-ISU sample showed significantly higher recommendations for length of punishment (M = 5.65, SD = 2.82) when compared to ISU students (M = 4.21, SD = 2.61), $t(108) = -2.67$, $p = .009$. However, the non-ISU sample recommended less severe punishments when it came to visitation (M = 3.78, SD = 2.24) compared to the ISU sample (M = 4.90, SD = 1.54), $t(108) = 2.79$, $p = .001$. Also, the non-ISU sample recommended less labor (M = 4.00, SD = 2.24) compared to the ISU sample (M = 5.09,

SD = 1.57), $t(108) = 2.70$, $p = .004$ respectively. The ISU and non-ISU samples did not statistically differ on facility recommendations, $t(107) = -1.32$, $p = .189$.

Because of those differences, four additional 3-way ANOVAs (2 x 2 x 2: age of offender x type of crime x sample) were conducted, one for each of the punishment items, to analyze potential interactions between these previously significant variables and the sample, and to ensure that these previous significant factors maintained their original significant main effects regardless. The results indicated that the sample had a significant impact on ratings for length of punishment, $F(1, 101) = 6.90$, $p = .010$, $R^2 = .049$, visitation, $F(1, 101) = 9.83$, $p = .002$, $R^2 = .081$ and required labor, $F(1, 101) = 7.13$, $p = .009$, $R^2 = .065$. However, it did not interact with the age of the offenders, $F(1, 101) = 3.21$, $p = .076$, $R^2 = .023$; $F(1, 101) = 2.841$, $p = .095$, $R^2 = .023$; $F(1, 101) = .182$, $p = .810$, $R^2 = .000$ for the respective dependent variables (length, visitation, and labor) , or the type of crime, $F(1, 101) = .081$, $p = .777$, $R^2 = .001$; $F(1, 101) = .51$, $p = .475$, $R^2 = .004$; $F(1, 101) = .17$, $p = .684$, $R^2 = .002$ respectively, although there was a marginally significant interaction between offender age and sample on length of punishment. In addition, the sample did not significantly impact recommendations for the kind of facility the offender should be held in, $F(1, 101) = 1.41$, $p = .238$, $R^2 = .012$, nor did sample source interact with the age of the offender, $F(1, 101) = 1.56$, $p = .215$, $R^2 = .013$, or the type of crime, $F(1, 101) = .78$, $p = .380$, $R^2 = .007$,on facility recommendations.

As was expected by previous analyses, offender age continued to be a significant factor for length of punishment, $F(1, 101) = 7.37$, $p = .008$, $R^2 = .053$ and facility, $F(1, 101) = 9.59$, $p = .003$, $R^2 = .081$; however it was also significant for visitation, $F(1, 101) = 5.64$, $p = .019$, $R^2 = .047$, but not for labor, $F(1, 101) = .301$, $p = .584$, $R^2 = .003$. Crime continued to be a significant factor on length of assigned punishment, $F(1, 101) = 14.138$, $p < .001$, $R^2 = .101$, but not for the

other three dependent variables, $F(1, 101) = 3.73$, $p = .056$, $R^2 = .032$; $F(1, 101) = .044$, $p = .835$, $R^2 = .000$; and $F(1, 101) = 7.37$, $p = .008$, $R^2 = .004$, though facility was still marginally significant. Finally, the ANOVA showed no significant interaction between crime and offender value on length of punishment, $F(1, 101) = 2.84$, $p = .095$, $R^2 = .020$, type of facility, $F(1, 101) = .479$, $p = .490$, $R^2 = .004$, visitation, $F(1, 101) = .773$, $p = .381$, $R^2 = .006$, or required labor, $F(1, 101) = .263$, $p = .609$, $R^2 = .002$. The results indicated one significant 3-way interaction between the independent variables on visitation, $F(1, 101) = 4.70$, $p = .033$, $R^2 = .039$. However, it did not show a significant 3-way interaction between the three independent variables on length of punishment, $F(1, 101) = 2.38$, $p = .126$, $R^2 = .017$, type of facility, $F(1, 101) = .272$, $p = .603$, $R^2 = .002$, or required labor, $F(1, 101) = .46$, $p = .501$, $R^2 = .004$.

Identification

A chi-square test for independence was conducted to see if females and males differed on who they identified with in the provided vignette. The results indicated that although more women (98.7%) than men (85.7%) identified with the victim, $X^2(1, N = 104) = 7.52$, $p = .006$, this difference was small, reflecting responses of only five subjects, four men and one woman. Since such large a large majority of both sexes identified with the victim over the offender, it was not practical to do analyses including this variable; a chi-square goodness of fit test verified the reliability of this tendency to identify mostly with the victim, $\chi^2(1, N = 105) = 85.95$, $p < .001$.

Perceived Reproductive Ability

An additional 3-way ANOVA was conducted to test whether the victim's age, the sex of the participants, or the crime had any significant impacts on the victim's perceived ability to reproduce in the future, using the reproduction item from the victim attitudes questionnaire. The

results indicated that there was a significant main effect on the ability of the victim to reproduce based on their age, with younger women (M = 51.58) scoring higher than older women on this measure (M = 39.51), $F(1, 88) = 4.66$, $p = .034$, $R^2 = .050$. On the other hand, the crime and the sex of the participant did not have significant impacts on the victim's perceived ability to reproduce. In fact, rape (M = 44.69) had nearly identical scores to assault (M = 46.41), $F(1, 88) = .10$, $p = .759$, $R^2 = .001$, as did men (M = 46.20) when compared to women (M = 44.89), $F(1, 88) = .06$, $p = .814$, $R^2 = .001$. The results also showed that there was no interaction between age of victim and sex of participant, $F(1, 88) = 2.07$, $p = .154$, $R^2 = .022$, between age of victim and crime, $F(1, 88) = .08$, $p = .774$, $R^2 = .001$, between sex of participant and crime, $F(1, 88) = .09$, $p = .767$, $R^2 = .001$, or between victim's age, sex of participant, and crime, $F(1, 8\ 8) = .02$, $p = .896$, $R^2 = .000$, on the victim's ability to reproduce in the future

Correlations

In order to further explore effects, correlations were ran between all punishments items, attitudes towards both the victim and offender, and the victim's likelihood of reproducing in the future. See Table 7 for the full correlation matrix with significance values. Overall, the correlations demonstrated that some of the punishment items were correlated with each other while others were not; for instance, length of punishment recommendations were significantly correlated with facility recommendations and marginally significantly correlated with visitation. Attitudes towards the victim and the offender were significantly correlated with each other and reproductive likelihood. Finally, attitudes towards the offender were significantly correlated with facility and visitation recommendations.

Table 7

Correlations between Punishment DVs, Attitudes, and Reproductive Likelihood

Correlation Matrix	Length	Facility	Visitation	Labor	Vic Attitude	Off Attitude
Length	1					
Facility	.54***	1				
Visitation	.17	.37***	1			
Labor	.03	.06	.30**	1		
Vic Attitude	.10	.10	.09	-.08	1	
Off Attitude	-.13	-.24*	-.23*	.06	.21*	1
Repro. Likelihood	.01	-.13	-.08	.01	.45***	.39***

Note. * indicates $p < .05$, ** indicates $p < .01$, and *** indicates $p < .001$.

Chapter 4

DISCUSSION

The results of this study showed that the age of the offender and the type of crime impact some, but not all, types of punishment that be might be meted out. While the age of the victim did not have a significant effect, the means suggested the patterns that were expected, that is that offenders who harmed high reproductive value victims would receive more severe punishments than those who harmed low-value victims. Contrary to expectations however, attitudes towards the offender and victim were not affected by any of the independent variables. These effects and their implications are examined further below.

The results indicated that the factor that had the largest influences on recommendations for punishment was the type of crime the individual committed. This makes logical sense based on the perceived differences between the crimes of rape and assault in the United States, where rape is punished with almost twice the overall sentence, 117 months vs. 61 months on average (Greenfield, 1995). However, this difference might not be as apparent in different cultures that maintain different views towards women, rape, and what constitutes "real rape" (Hetu, 2014; Rebeiz & Harb, 2009). Based on these cultural differences, it is possible that individuals in these cultures may be more lenient on the offender who rapes a victim, especially if that rape was committed by someone the victim knew or was romantically involved with, thus not constituting "real rape".

Also as expected, the age of the offender affects the severity of punishments that people believe is appropriate, specifically affecting recommended length of sentencing and the kind of facility an offender should be held in; this is contrary to previous research which suggested that age only mattered if the offender was very old (van Wingerden et al., 2016); however, prior research examining age's role in punishment was often atheoretical. They examined the linear effects of an offender's age thus missing the possibility of moderating effects of the victim's age. This demonstrates the importance of further research into these characteristics utilizing theories that give consideration to these kinds of predictions (e.g. which ages matter, for whom, and for what kinds of crimes).

Surprisingly, the age of the victim did not have a significant impact on punishment items; however, the overall means for punishment items based on this factor were in the expected direction. This suggests that a larger sample might yield a significant effect. Nevertheless, this effect is clearly smaller than that of age of the offender. This might reflect the strong tendency of subjects to identify with the victim. The empathy that comes from identifying with the victim could reduce the effects of the victim's attributes on judgements. For instance, Betancourt (2004) states that "perspective taking" has been shown to have a direct impact on feelings of empathy, and that these feelings of empathy can then be used to encourage prosocial behavioral. Based on this model, it is clear that if subjects were placing themselves in the shoes of the victim, then they likely felt some form of empathetic feelings towards them, which could have overridden the actual attributes of the victim in the manipulation. It is unclear whether being expected to maintain objectivity, as would be expected in a trial, would make victim demographics more important due to the potentially strong tendency to identify with them.

It may also be that extreme demographics (i.e., very old or very young) victims might generate different responses than seen here. For instance, in the U.S., the oldest and youngest members of the population are often thought to be especially vulnerable to exploitation and harm, often leading to consideration or enactment of special protective legislation. Thus, U.S. samples and juries may be especially punitive toward those hurting victims in these groups (and possibly less punitive toward offenders in these categories).

Contrary to expectations, it is unlikely that even a larger sample would have obtained evidence for Hypothesis 4. This hypothesis was that the relationship between victim-value and punishment should appear stronger for men due to potentially seeing the victim as a potential mate. The recommendations for punishment in this study were nearly identical regardless of subjects' sex, providing no support for this idea. However, the additional analyses showed neither men nor women indicated a belief that the victim's reproductive value was harmed by the offender, which might account for this. Perhaps a stronger manipulation that directly addressed the reproductive ability of a victim would give different results, such as one where they either got pregnant from a sexual assault or did not. Also contrary to what was originally expected, Hypothesis 5 was also not supported. It is clear that subjects viewed rape as more problematic, since they recommended much stronger punishments for it, but they did not indicate differences in attitudes towards someone who commits rape and someone who commits assault. This could indicate that attitudes towards the offender and victim are not the features that underlie the significant differences in recommendations for punishment, which could be considered a positive outcome since it would indicate individuals are able to separate their feelings about someone when deciding on a punishment for them. Additionally, it could be that the attitude questionnaires, which were designed to measure more general attitudes, such as intelligence, did

not assess attitudes that a decision maker would use when deciding on how long to punish someone, such as their ability to contribute to society in the future or their likelihood of reoffending.

Overall, these results suggest that while the application of the entire evolutionary model was not supported, it could be used to explain some of the results found within this study. The fact that the age of the offender remained a significant factor, while the age of the victim did not could indicate the presence of a more generalized evolutionary mechanism that affects judgements based on the perceived value of an individual to the larger group, even if they do not serve as an immediate reproductive option. For instance, it is possible that individuals would see the reproductive potential of the offender not as a specific benefit to themselves, but as a benefit to the larger group that comes from having more individuals with high reproductive capabilities. This conclusion is supported by the fact that subjects indicated a general belief that the victim's reproductive value was not harmed based on either crime they could have experienced. In addition, the lack of an effect based on victim's age could have also been due to the tendency for most subjects to identify with the victim, indicating a tendency to empathize more with the victim than the offender. Either one of these explanations could explain why offender age mattered while victim age did not. Also, the fact that participants' sex had no effect on recommendations for punishment or interactions with the age of the victim or offender also supports the conclusion that the mechanism causing the differences in offender attitudes could be due to a more generalized evolutionary measure of value, rather than an approximation of immediate mate potential.

Weaknesses and Limitations

The primary limitation of this study, in its current form, was its small sample size. This small sample size, combined with the fact that we were initially looking for small effects and interactions, results in minimal statistical power. However, this also indicates that some of the effects that were significant, such as the impact of the offender's age on recommendations for punishment, may be larger than originally predicted. The problem of the small sample was particularly acute for testing sex differences, as the sample was disproportionately female, making it impossible to reliably assess gender differences. Tests of interactions (as predicted by Hypothesis 4) were not only underpowered in this case, but almost impossible to analyze when one cell has only two men.

It is also possible that the obtained results are specifically tied to the heavy female-bias in the sample. Due to the fact that the female victim held no reproductive value for the typical heterosexual female subject, the importance of the victim's characteristics might have been muted. On the other hand, the impact of the offender's characteristics might have been magnified. It is thus unclear whether these findings would generalize to a population (and possible jury pool) that would be more balanced.

The low sample size also led to lower than ideal numbers of individuals within various individual cells of the sample, with 110 participants the average number of individuals per cell with eight groups is only 13.75, as opposed to the ideal level of around thirty per cell. This issue is also magnified by the amount of sex differences in the sample, with some cells on for the sex based analyses having only two individuals in a given cell, see Table 2 for full list of subject numbers per vignette. Overall, the low sample size led to very low numbers of people in some cells which impacted the overall power of the study. In addition, the sample used for this study

was a convenience sample which could affect the results ability to be generalized to other samples.

An additional limitation of this study, was the use of vignettes where very little information was provided for judgements. This means that the results of this study may lack generalizability to more complex real-world scenarios where there is far more and varied kinds of information provided, for instance to a jury. Future studies could expand on these kinds of vignettes to include more kinds of demographic characteristics, such as race, and personal circumstances, such as prior criminal history. The addition of these factors would provide the study and the vignettes with more realistic and generalizable information.

Finally, it should be noted that all of the measures used for this study were self-report questionnaires, including their attitudes towards the victim and offender, as well as their recommendations for punishment. Participants may have felt more conscious about their answers and given socially desirable responses. This might for instance account for the strong empathy given to the victim. Perhaps using a more realistic scenario, such as allowing the participants to view pictures of the victim and offender, and a behavioral indicator, such as signing a statement of support for an offender, would avoid such biases.

Future Research

Future research should focus on other kinds of characteristics that would have impacted decision-making in evolutionary history, such as scarcity of resources or social status, in order to see how they could play a role in punishment or other kinds of social interactions. Social status should be a key area of study due to previous studies already highlighting its significant impact as a demographic factor in some court cases (Volkov, 2016). Additional research could attempt to analyze whether this previously seen phenomenon is due to social factors associated with

status and wealth, the legal assistance these resources provide, or if this effect might also be due to previously unconsidered evolutionary factors, such as the value to the group that comes with access to resources, status, and knowledge.

Future research should also focus not only on how age might serve as a predictor for recommendations for punishment, but how it might also prove important for other kinds of real-world evaluations, such as who to believe when two people are providing contradictory information or who to provide support to when resources are limited. For instance, a study could attempt to look at who individuals are more likely to donate money or time to when the subject's resources in these areas are limited. These types of additional studies could provide a basis for better understanding how and why humans choose to engage in the behaviors that they do in what are typically very complex situations.

This study provides support for examining the effect of offender personal characteristics in crime and punishment reactions which may prompt further use of "selection thinking" (Daly & Wilson, 1988) to further explore some unexplained patterns in criminal justice research. However, the interpretation that offender-age effects represent changes in his "reproductive value", based on evolutionary theory and an attitude based model, is not the only possible explanation for the current findings. For instance, it is possible that the greater punishment assigned to older offenders, who in reality are far less likely than younger persons to commit violent crimes, may have been a reaction to the unusualness of his actions, perhaps implying an enduring character flaw rather than an impulsive act. Additionally, it is also possible that the subjects viewed the older offender as more likely to recidivate, based on the late-stages of life where he is still committing serious crime, and thus punished him more severely based on this

assumption. Based on the results of this study, it is impossible to say which explanation truly represent what is causing the effect found in this study.

Due to this uncertainty, future research should attempt to further test the theoretical interpretation proffered in this study. For instance, the effects of varying characteristics beyond age that hold reproductive significance (e.g., physical attractiveness, resource-gaining potential, etc.) would be useful. Alternatively, details of the crime might be varied to directly affect the victim's reproductive value, by including statements about STIs or a pregnancy that resulted from the rape; this would lead to a much more direct and immediate effect on reproductive value, and may affect likelihood of future reproduction more than the crimes used for this study. Additionally, future research should also to measure perceived reproductive value of the offenders as well as victims to enable a mediation analysis. These could lend further support or challenge the claim that the current results of this study are truly responses to the individuals' reproductive value. In addition, future research could attempt to obtain a larger sample to further test the hypotheses and effects predicted in this study. This could allow for additional effects to be found that were too small to be detected with our current sample. Finally, future studies should attempt to use a more realistic measure, such as one with additional individual characteristics other than age, in order to verify that these effects maintain even when more outside information is provided. Also, a more realistic measure that allowed participants to view a potential victim or offender could change the tendency to identify almost exclusively with the victim, which was found in this study.

Conclusion

Age is often thought to be a nuisance factor that should have little impact on judgements about punishing a perpetrator. Building from evolutionary theory, this paper showed that

offenders' and victims' ages should have an impact on such judgements. Although evidence for an evolutionary explanation was limited, the study did demonstrate that there is an effect that merits further examination.

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APPENDIX A: DEMOGRAPHIC QUESTIONNAIRE

1) What is your age? ____ years (must be 18 or older)

2.) Which of the following race or ethnic categories describes you best?
a.) White/Caucasian
b.) Hispanic/Latinx
c.) Black/African American
d.) Multiracial
e.) Other

3.) What is your current gender identity?
a.) Female
b.) Male
c.) Transgender, Neither, or Other

4.) What is your biological sex?
a). Female
b). Male
c) Intersex

5.) What is your current sexual orientation?
a.) Heterosexual/Straight
b.) Lesbian or Gay
c.) Bisexual, Pansexual, or Other

6.) Please indicate on the following scale how conservative or liberal you view yourself.
1.) Strongly Conservative
2.) Moderately Conservative
3.) Slightly Conservative
4.) Neutral
5.) Slightly Liberal
6.) Moderately Liberal
7.) Strongly Liberal

8.) Please indicate your current relationship status.
1.) Not in a relationship
2.) In a relationship but not living together
3.) In a relationship and living together
4.) Engaged
5.) Married

9.) Have you been the victim of any of the following kinds of crime? Please check all that apply
1.) Rape and/or sexual assault
2.) Physical assault or battery

3.) Robbery
4.) Other (please describe)_____

APPENDIX B: PUNISHMENT QUESTIONNAIRE

Please answer the following questions based on the vignette you just read:

1. If you were deciding Jeff's punishment, what do you believe would be an appropriate punishment for him?
    a. Probation
    b. 1-3 year in prison
    c. 4-7 years in prison
    d. 8-11 years in prison
    e. 12-15 years in prison
    f. 16-18 years in prison
    g. 19- 21 years in prison
    h. 22- 25 years in prison
    i. Life in Prison
    j. Death penalty

2. Once Jeff is sentenced, what kind of facility should he be held in?
    a. The most restrictive facility possible
    b.
    c.
    d.
    e.
    f.
    g. The least restrictive facility possible

3. How many visits should Jeff be allowed per month while in prison?
    a. 0
    b. 1
    c. 2
    d. 3
    e. 4
    f. 5
    g. 6+

4. Jeff should be required to participate in unpaid labor while in prison.
    a. Strongly agree
    b. Moderately agree
    c. Slightly agree
    d. Neutral
    e. Slightly disagree
    f. Moderately disagree
    g. Strongly disagree

5. What was the name of the Victim?

a. Jeff
b. Katelyn
c. Chris
d. Robert

6. How old was Katelyn?
    a. 20's
    b. 30's
    c. 40's
    d. 50's

7. What crime was committed?
    a. Murder
    b. Rape
    c. Assault
    d. Robbery

8. If you experienced the scenario you just read about, which character would you be?
    a. Offender
    b. Victim

APPENDIX C: OFFENDER ATTITUDES QUESTIONNAIRE

Please use the slider to indicate your responses to the following questions:

1) How intelligent is Jeff?
2) How moral is Jeff?
3) How well-adjusted is Jeff?
4) How much do you think you would like Jeff?
5) How much would you want to work with Jeff?

APPENDIX D: VICTIM ATTITUDES QUESTIONNAIRE

Please use the slider to indicate your responses to the following questions:

1) How intelligent is Katelyn?
2) How moral Katelyn?
3) How well-adjusted is Katelyn?
4) How much do you think you would like Katelyn?
5) How much would you want to work with Katelyn?
6) How likely is Katelyn to reproduce in the future?

APPENDIX E: INFORMED CONSENT

You are being invited to participate in a research study. You must be 18 years of age or older to participate in this research study. This study aims to find out what kinds of factors may influence the attitudes of individuals who are judging potential criminals in a crime scenario. The way you can help me answer this question is by answering the questions in this anonymous survey, which should take you about 15 minutes to complete.

Some reasons you might want to participate in this research are if you are interested in reflecting on how you perceive crime. Some reasons you might not want to participate in this research are if you have had experience as a victim of serious crime (including sexual assault).

The choice to participate or not is yours; participation is entirely voluntary. Your instructor may award extra credit or class credit for participation in this study. You can choose to answer or not answer any question you like, and to exit the survey if you wish to stop participating. If you leave the study early, you will not be able to receive credit for participation. However, you will still receive credit if you choose to skip questions as long as you submit the survey at the end. No one will know whether you participated or not.

The survey includes several questionnaires related to background characteristics (e.g., age, sex, gender identity, sexual orientation, religious affiliation, race/ethnicity, political affiliation, and relationship status), attitudes towards an offender and a victim in a hypothetical crime scenario, as well as your personal recommendations for how to punish the offender. You have been asked to participate in this research because the data are intended for testing hypotheses for a master's thesis, but they will be retained indefinitely for possible use in presentations or publications afterward. It is also possible that the information obtained may be used for the development of future research or in conjunction with future research.

Although every effort will be made to protect your answers, complete anonymity cannot be guaranteed over the Internet. No identifying information, such as your name, student identification number, birth date, or other personal identification is requested. Other potential risks of the study include a possibility that you may experience some mild anxiety when completing the survey if you've been a victim of a serious crime, including sexual assault or rape, or if you have been rightly or wrongly accused of a crime, or are related to someone in any of these situations. The potential scenarios described in this study are kept intentionally vague in order to minimize any potential risk.

It is unlikely that you will benefit directly by participating in this study, but the research results may benefit individuals in the scientific and criminal justice communities by increasing the general knowledge of how individual's feel about those who commit crime.

If you have any questions, please contact the principal investigator, Jordan Meadows, by e-mail at jmeadows8@sycamores.indstate.edu. You can also contact his thesis chair, Dr. Virgil Sheets, at Virgil.Sheets@indstate.edu or at 812-237-2451.

If you have any questions about your rights as a research subject or if you feel you have been placed at risk, you may contact the Indiana State University Institutional Review Board

(IRB) by mail at Indiana State University, Office of Sponsored Programs, Terre Haute, IN 47809, by phone at (812) 237-3088 or by email at irb@indstate.edu.

APPENDIX F: DEBRIEFING FORM

In this study we are interested in how age might elicit positive attitudes that could potentially influence decision-making towards victims and perpetrators of crime; in addition, we are interested in how this may vary by gender, and how it might differ based on the type of crime. Towards this goal, you received one of several possible scenarios that manipulated the age of a victim, type of crime they experienced, and the age of an offender. These factors were manipulated solely for this study and do not reflect any particular real-life crime or criminal justice scenario.

Thank you for your participation in this study. If you have any questions or if you are interested in the results of the study please contact Jordan Meadows, Department of Psychology, at jmeadows8@sycamores.indstate.edu

If you experience any distress or anxiety following this study, please contact the Indiana State University Student Counseling Center at (812) 237-3939 or the Indiana State University Psychology Clinic at (812) 237-3317. If you are not a student at Indiana State University you can seek support at http://www.mentalhealthamerica.net/ or https://findtreatment.samhsa.gov.